

ARCHITECTURAL RECORD

June 1960

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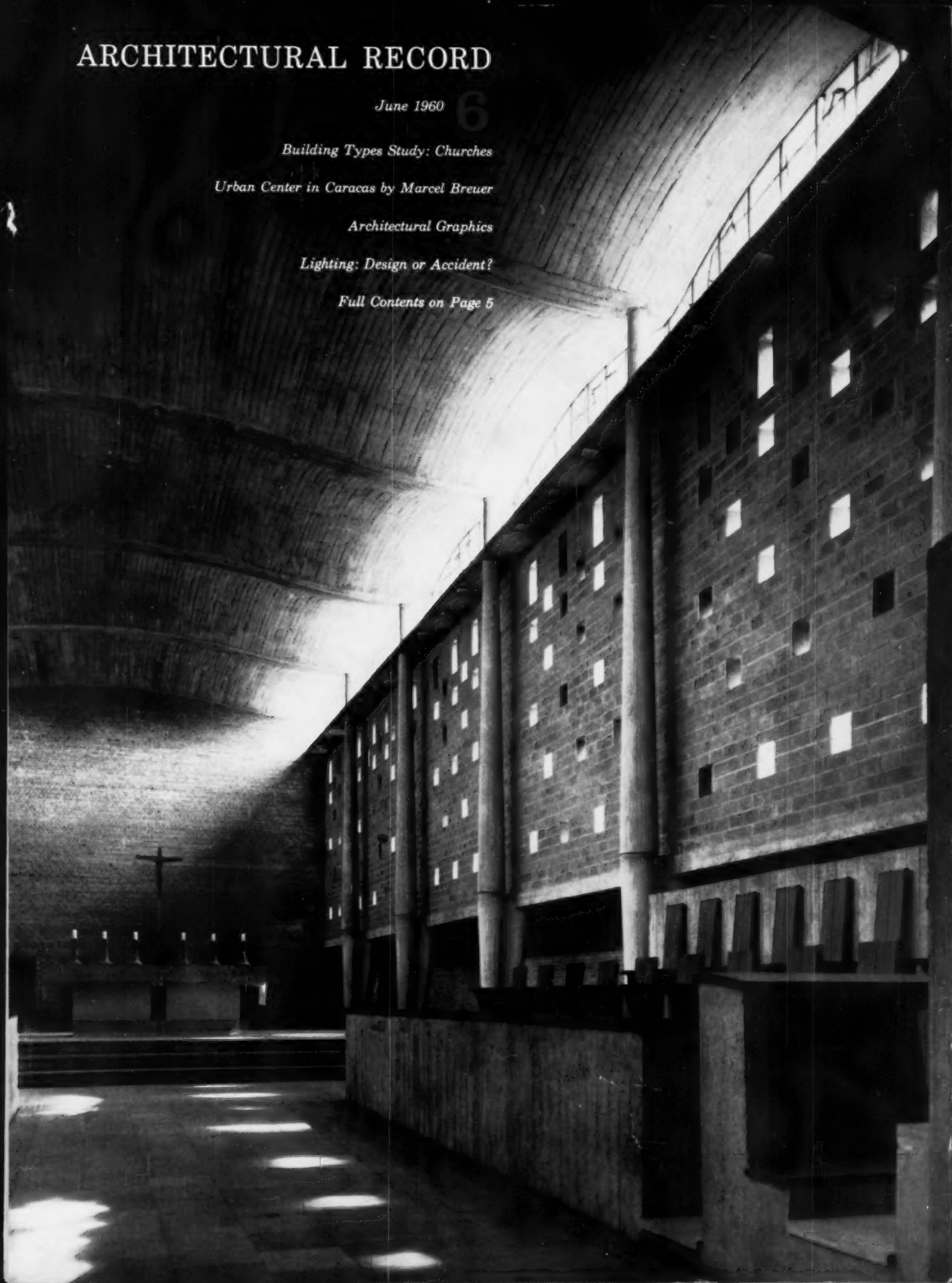
Building Types Study: Churches

Urban Center in Caracas by Marcel Breuer

Architectural Graphics

Lighting: Design or Accident?

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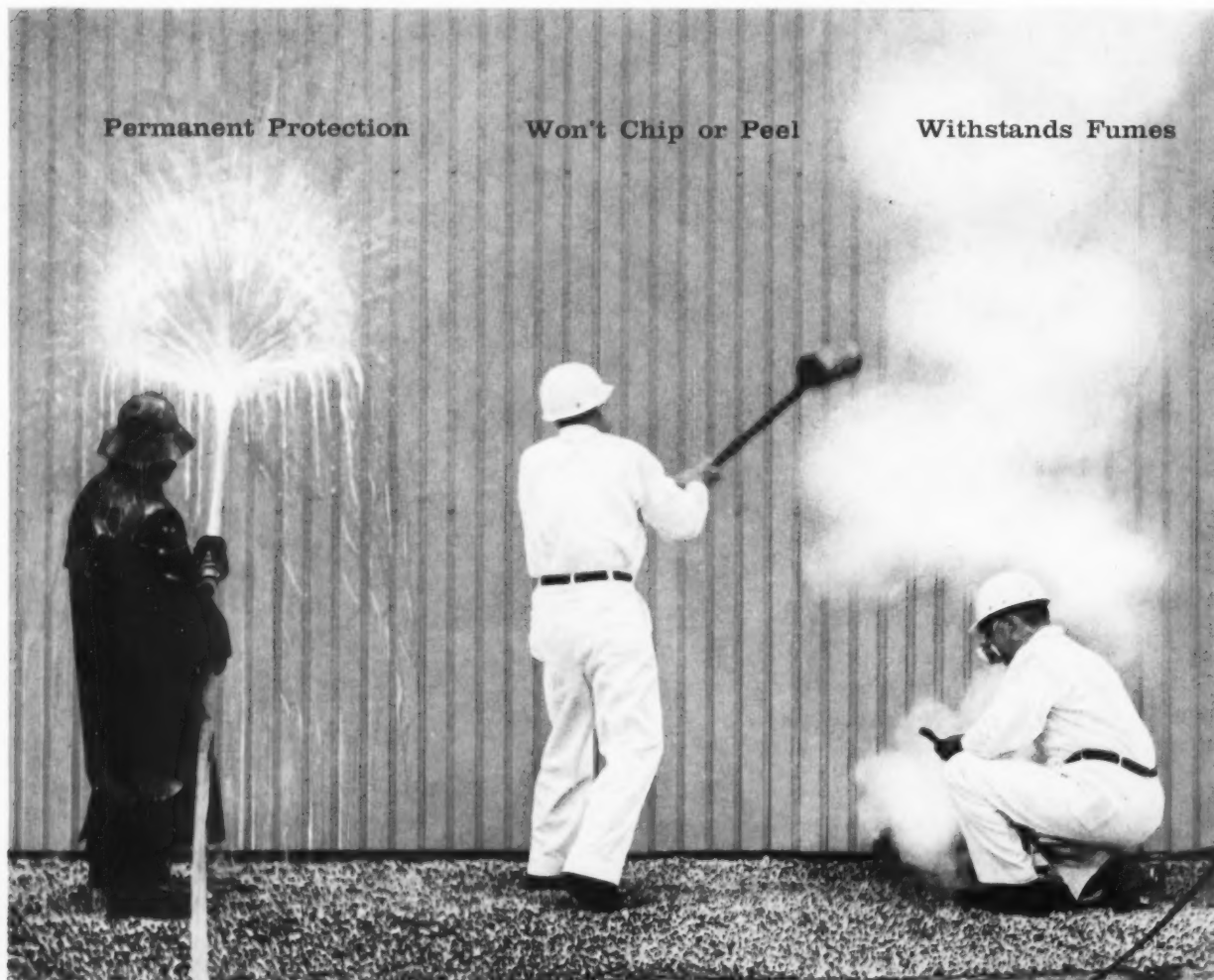
Of course, seldom will horseshoe pitching be practiced in laboratories, but this is only one of a wide range of tests that have proven that Durcon Lab Sinks, made of epoxy resin modified by the Durcon Company, will provide years of service. No cracking, no spalling nor other forms of mechanical failure.

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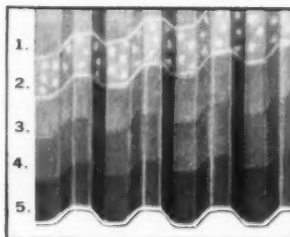


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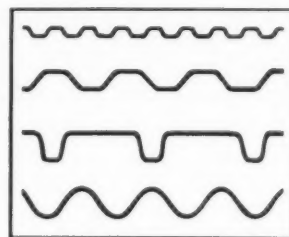
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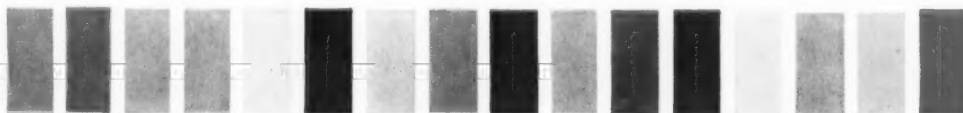
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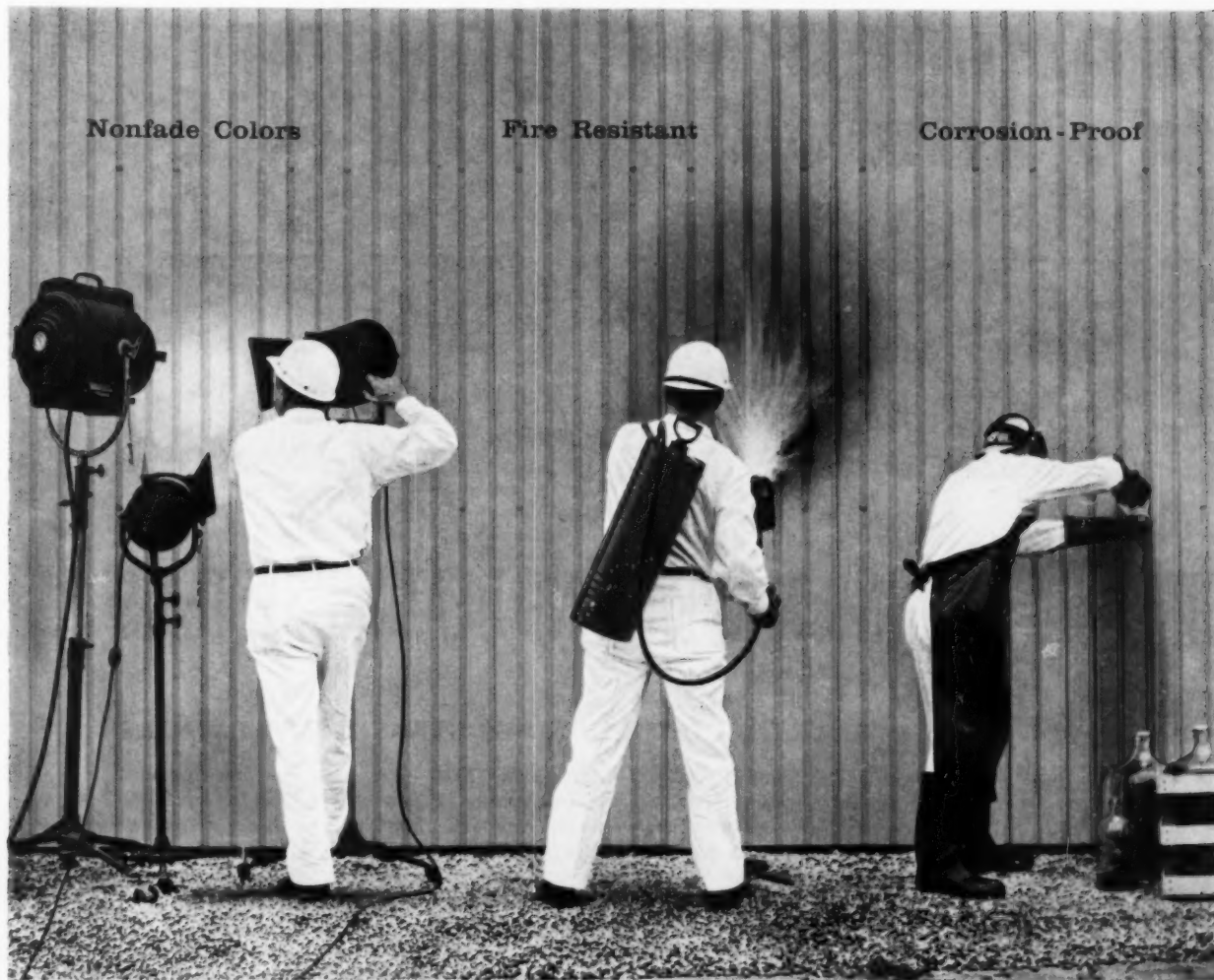
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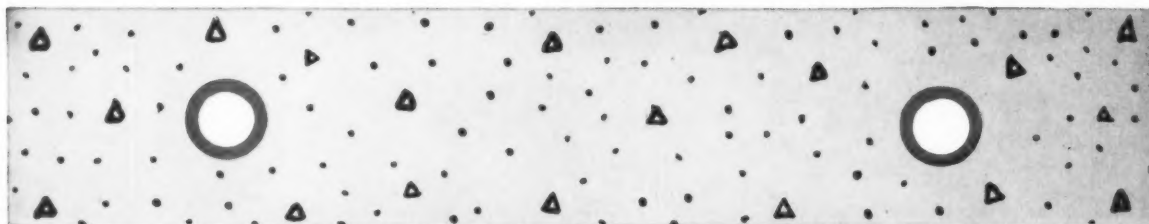
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ARCHITECTURAL RECORD

June 1960

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Coming in the Record

MASTERPIECE DE LE CORBUSIER

With much less publicity than is usual, Le Corbusier's latest has been building at Eveux, France: La Tourette, or, more properly, the Couvent d'Etudes. Those who have seen this Dominican priory have been so entranced that they call it his greatest work. Our photographer outdid himself to produce an uncommonly handsome set of photographs, which we shall give feature treatment in July.

CRITICISM: PROFESSIONAL LEVEL

The peripatetic John Ely Burchard, who is likely to turn up any place on the globe where architecture is seriously done or discussed, has done another of his scholarly evaluations of contemporary architecture, this time in Italy. Yes, he recently spent a great deal of time there, more perhaps than some of the English critics who have been so glib about architectural trends in Italian cities. His report is as thoughtful as his appraisal of Unesco House and its art. (ARCHITECTURAL RECORD, May, 1960).

MORE AND MORE MOTELS

Highway hotels (the favored term) are, as everybody knows, appearing in every village, every highway if not every lane. They are appearing in every concept, from roadside rest to Miami Beach monstrosity. Appearing in Dodge statistics to the tune of about 3,000 a year. They will appear in our July number, lots and lots of them.

OTHER F. W. DODGE SERVICES: Dodge Reports—Dodge Construction Statistics—Sweet's Catalog Services—Dodge Books—Dodge Mailing Service—The Modern Hospital—The Nation's Schools—College and University Business—Hospital Purchasing File—Chicago Construction News—Daily Pacific Builder (San Francisco)—The Daily Journal (Denver)—Real Estate Record & Builders Guide—Dow Building Cost Calculator.

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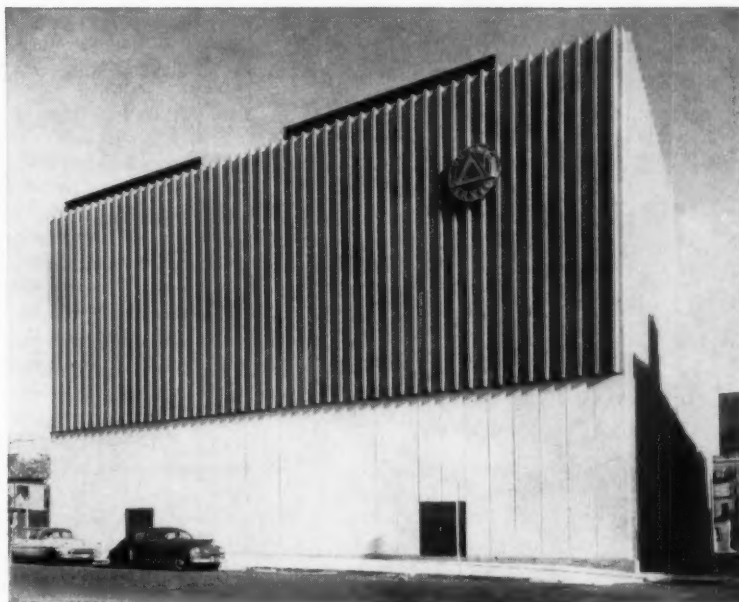
STRESSING DESIGN

Prestressed Concrete Double Tees Standing on End Provide Imaginative New Wall Treatment

● Double tee beams of prestressed concrete, best known for their value in roof and floor systems, are now finding an attractive new use. A recently completed switching station of the Public Service Electric & Gas Company of Newark, N. J. has two walls made of side-by-side 10-ton vertical double tees running the full height of the building—nearly 61 feet—and creating an interesting pattern.

A third wall, featured in the photograph above, is topped by tees 39½ feet tall. The bottom section of this wall employs removable flat concrete slabs, to facilitate the replacement of major equipment.

The architect found that using prestressed double tees in this manner had economic as



well as design advantages—including off-site fabrication and stockpiling, fast erection with minimum personnel, no scaffolding, and lower heating costs due to better insulation.

To produce the 5,000-psi concrete specified for this job, the prefabricator chose dependable 'Incor'* 24-hour cement.

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Newark, N. J.

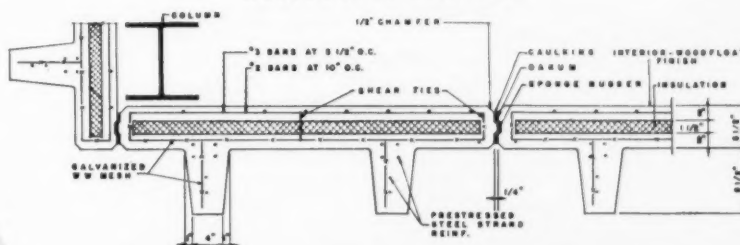
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OFFICE OF ALFRED EASTON POOR
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EDWARD M. WALDRON, INC.
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ATLANTIC PRESTRESSED CONCRETE CO.
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Glass fibre insulation was sandwiched between layers of concrete in the crossbar of the double tee unit to provide an excellent thermal barrier.

HORIZONTAL SECTION



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GLOBE

sprinkler system guards Goodall School against fire



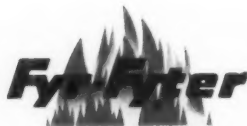
Goodall School, a three-story building that houses kindergarten through Grade 6 in Webster Groves, Missouri, is now completely protected by a Globe Sprinkler System. It dependably guards the lives of 450 pupils and 17 teachers . . . protects 16 classrooms and other facilities against all fires! A total of 518 sprinklers is distributed throughout 37,500 square feet and integrated with the school alarm system. Goodall School thus observes a strong recommendation of The National Fire Protection Association that all school buildings of combustible construction have automatic sprinkler protection.

Globe Sprinkler Systems are a product of The Fyr-Fyter Company, which also offers SAFA alarm systems, fire hose and extinguisher cabinets, and a complete line of lightweight, easily-operated fire extinguishers. Be positive your present school buildings are completely fire-protected by consulting an experienced Fyr-Fyter representative! He also offers analysis and recommendations, at no obligation, if you are planning a new school or additional facilities.

Don't let a disaster like the recent Chicago school fire strike your community! Write today to The Fyr-Fyter Company, Dayton 1, Ohio.



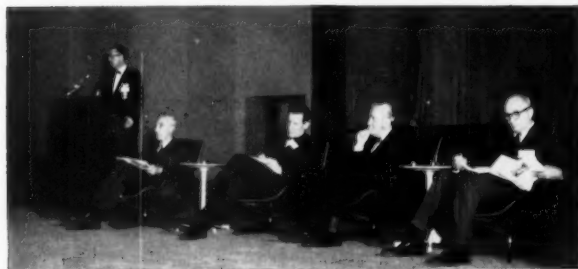
Main building of Goodall School and separate two-story facility are both protected with Globe Sprinklers. Globe sidewall sprinklers were utilized in classrooms and corridors—completely effective, yet architecturally unobtrusive!



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Change Is the Keynote at A.I.A.'s San Francisco Convention

The changing role of the architect in a changing world was the concern of architects in and out of formal sessions of the 92nd annual convention of the American Institute of Architects, April 18-22 in San Francisco. "Expanding Horizons" was the official theme; and a series of distinguished speakers from disciplines outside the profession of architecture brought messages which were testimony of change present and to come and of the stunning complexity of the problems which confront the planners of today and tomorrow. The A.I.A. had a lengthy and solemn dissertation from its own Committee on the Profession calling for sweeping changes in education, registration and standards of practice to equip the profession to meet the new challenges. And in his brief inaugural address, the A.I.A.'s new president, Philip Will Jr. of Chicago, saw "the profession at a crossroads" and suggested



DR. J. ROBERT OPPENHEIMER (seated far left in top photo) called "the profession which spans the great arch from the techniques and sciences to the arts and the meanings and the hopes of man" to "look with very wide angle lenses at the sites in which you are working." Dr. Oppenheimer's address, received with prolonged applause and a standing ovation, was the high point of an outstanding program

NEW FELLOWS pose at the foot of the grand staircase in the Rotunda of the City Hall, where they were invested in an impressive and moving ceremony. Two were women



LUDWIG MIES VAN DER ROHE received the 27th Gold Medal of the A.I.A. from retiring President John Noble Richards at the annual dinner in the Garden Court of the Sheraton Palace Hotel. "We are not at the end but at the beginning of an epoch," Mies said; "an epoch which will be guided by a new spirit, which will be driven by new forces, new technological, sociological and economic forces, and which will have new tools and new materials. For this reason we will have a new architecture"





Dr. Ralph Tyler, director of Center for Advanced Study in Behavioral Sciences, Palo Alto, who introduced the program



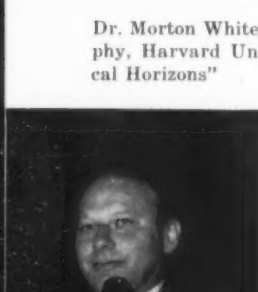
Dr. Wendell Bell, professor of sociology and anthropology, UCLA: "Sociological Horizons"



Dr. J. Robert Oppenheimer, director of the Institute for Advanced Studies, Princeton: "Houses of Science"



Dr. C. Northcote Parkinson, Raffles Professor of History, University of Malaya: "Political and Economic Horizons"



Dr. Morton White, professor of philosophy, Harvard University: "Philosophical Horizons"

1960 A.I.A. Convention: "Expanding Horizons"

"the time has come when we must redefine the mission of the architectural profession"—with the profession accepting, and equipping itself to accept, the kind of responsibility for the total environment the nation has historically entrusted to the medical profession in matters of health and the clergy in matters of religion and morals.

Wonderful Town!

On a less lofty level, the corridor conversations and the cocktail party chatter tended to get around to the same theme—the problems of practice in a day when the problems are changing almost daily.

It was a big convention—at a total registration of 2525 the second biggest in A.I.A. history—and this was undoubtedly in part attributable to the attractions of that wonderful town, San Francisco—one subject on which there was entire and enthusiastic agreement. Weather was perfect, clear and bright; and the program was so organized that it left time for sight-seeing and the architectural tours and eating in San Francisco's famous restaurants (there were no programmed luncheons and only the annual dinner). With the Mark Hopkins as the official "convention headquarters," meetings were held in the new Masonic Temple just a bit farther up Nob Hill.

Will Succeeds Richards

With no political excitement, and no surprises, new officers were named and the business of the convention was covered. Mr. Will was elected without opposition to succeed John Noble Richards of Toledo as the 38th president of the A.I.A.

In the only two contests, James M. Hunter of Boulder, Colo., was named second vice president over I. Lloyd Roark of Kansas City and L. Bancel LaFarge of New York; and Raymond S. Kastendieck of Gary, Ind., was returned as treasurer over a renewed bid by Gerson T. Hirsch of Pleasantville, N. Y.

Henry L. Wright of Los Angeles was elected first vice president (moving up after two years as second vice president); and J. Roy Carroll Jr. of Philadelphia was re-elected secretary.

New regional directors (nominated by their districts and elected at the convention) are: *Central States*—Oswald H. Thorson, Waterloo, Io-

wa (succeeding I. Lloyd Roark, Kansas City); *Florida*—Robert M. Little of Miami (succeeding Clinton Gamble, Fort Lauderdale, Fla.); *California*—Malcolm D. Reynolds of Oakland, Calif. (succeeding U. Floyd Ribble, Los Angeles); and *Texas*—Reginald Roberts, San Antonio (succeeding R. Max Brooks, Austin).

New Structure Postponed

The two major matters of business put before the convention related to adjustment to the changing context of practice: a proposal, which had been presented to the membership in brochure form months before the convention, and as the result of long study by an A.I.A. Board committee, headed by the then first vice president, Philip Will Jr., to revise radically the organization of the Institute itself; and another proposing the broadening of national Institute membership by the addition of three new national membership classifications—student, associate and "professional affiliate" (consulting engineer, landscape architect or "land planner" and artist).

Both proposals (in the form of by-law changes offered by the Board of Directors) were referred back to the Board for further study; and it is likely that next year's convention in Philadelphia will produce fuller discussion and some action on them.

Mies Accepts the Medal

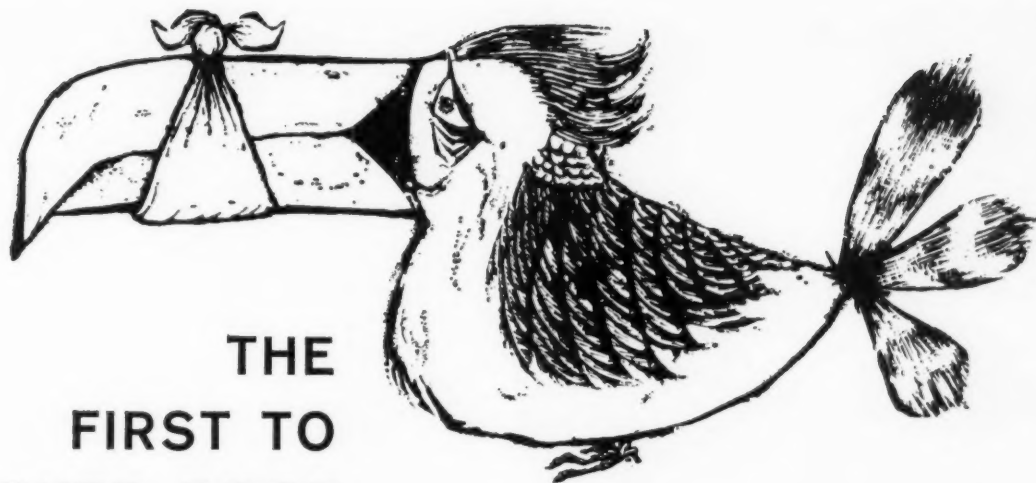
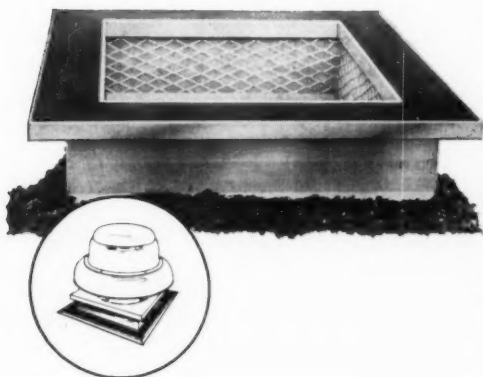
The convention had no more poignant moment than that at which the A.I.A.'s Gold Medal, its highest honor, was presented to Ludwig Mies van der Rohe. Now 74, Mies (like Frank Lloyd Wright and Walter Gropius) has had to wait longer than some less distinguished colleagues for this recognition of his "distinguished contributions to architecture"; and the storm of applause when the presentation was made as the climax of the annual dinner (while the band played "Chicago"!) suggested that the audience was trying in thunderous ovation to make up for the delay.

Mies finally was able to gesture the assembly to silence, and it sat in an almost breathless hush to hear his brief speech of acceptance:

"To receive the Gold Medal of the American Institute of Architects is indeed a great honor.

*text continued on page 32
more photos on pages 12-15*

THE
FIRST TO
CURB ROOF
EXHAUSTER
NOISES
WERE
ENGINEERS
AT PENN!



*Penn's
SONOTROL CURB for all
roof ventilator installations
provides 3 IMPORTANT BENEFITS
to the Specifying Engineer*

Putting the curb on prevailing problems that accompany roof ventilator installations was no easy task. Roof fan sounds had to be hushed. Field constructed curbs were often haphazardly put together; they overloaded roofs and lacked dimensional coordination for ventilators and dampers. But, engineers working at Penn developed the industry's first solution . . . the *Sonotrol Curb!*

EXTRUDED ALUMINUM, an exclusive in Penn's Sonotrol design features structural "I" beam lifetime construction; reinforced seamless outside wall; loading capability of more than 700 lbs. per lineal ft. with a minimum safety factor of 2.5; provides stabilized dimensions for all dampers and ventilators . . . and everything fits!

ACOUSTICAL-THERMAL INSULATION reduces decible build-up of exhauster at the source; attenuates resonance and reverberation; minimizes some values; no reduction in air movement.

SELF-FLASHING eliminates the problem of field flashing over the Curb; installation is simplified; flashing flange incorporates V-groove serrations for maximum gripping power.

Get complete facts now on how Penn Ventilator can be your one source for the universally accepted Sonotrol Curb, Damper and Ventilator. Contact your local representative or write direct.



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1960 A.I.A. Convention
Camera's Eye View



PRESIDENT RICHARDS PRESENTS:

1. Architectural Photography Medal to Roger Sturtevant, San Francisco. 2. Craftsmanship Medal to William I. DeMatteo, silversmith, Colonial Williamsburg. 3. Allied Professions Medal, for Naval Architect William Gibbs Cox, New York, to partner Rear

Admiral Kniskern. 4. Edward C. Kemper Award, for Service to the Institute, to Philip D. Creer, architect and director of University of Texas School of Architecture. 5. Honorary Membership to Dr. Shirley Cooper, A.A.S.A., Washington, D.C. 6.



Mies with Minnesota's architecture dean, Ralph Rapson; and (in leis) incoming president Philip Will Jr. of Chicago with first V. P. Henry Wright of Los Angeles and John Lyon Reid of San Francisco



Minoru Yamasaki of Detroit and panelist Harry Weese of Chicago; and RECORD Western Editor Elisabeth Kendall Thompson of Berkeley with George Vernon Russell and William Pereira of Los Angeles



Francis Joseph McCarthy of San Francisco, F. W. Dodge Corporation vice president H. Judd Payne of New York and Henry Wright of New York; Dean Henry L. Kamphoefner of North Carolina State School of Design and George Matsumoto, also of Raleigh



Switzerland's Jean Tschumi, winner of the 1960 Reynolds Award, discussing exhibit of his successful entry in the \$25,000 competition; award was presented at the convention; and Paul James Huston of Palo Alto with Edgar Tafel of New York



New Orleans duo—Solis Seiferth and James Lamantia; Executive Director Edmund R. Purves and Mrs. Purves of Washington, D.C., and Everett E. Parks, Santa Ana, Cal.



Harris Armstrong of St. Louis and Robert Fitch Smith of Miami; and New Yorkers Giorgio Cavaglieri (left) and Robert S. Cutler of SOM (right) with Great Lakes Director Linn Smith of Birmingham, Mich.



Sculptor Costantino Nivola of New York and the youngest architect Weese—Ben; Joseph L. Johnson of Los Angeles and Theodore Bernardi of San Francisco



Wolf von Eckhardt and Polly Shackleton of the A.I.A. staff with North Central Regional Director Harold Spitznagel, Sioux Falls, S. D.; San Francisco's Gardner Dailey and John Carl Warnecke Jr.



Honorary Membership to Mayor Raymond R. Tucker of St. Louis. 7. Honorary Membership to Sir Leslie Munro of New Zealand, Permanent Representative to the United Nations. 8. Citation of an Organization, for General Motors Corp., to V. P. Philip

J. Monagan. 9. Citation of an Organization, for Providence City Plan Commission, to Director Frank F. Malley. 10. Citation of an Organization, for IBM, to Western Regional Manager L. E. Clark. 11. Not Mr. Richards but Vice President C. E. Manning,

Reynolds Metals Co., presents 1960 Reynolds Awards to Prof. Jean Tschumi of Switzerland. 12. Honorary Fellowship to Santiago Agurto Calvo of Peru. 13. Fine Arts Medalist—Thomas Hart Benton of Kansas City, mural painter



At the President's Reception at City Hall (following the Investiture of Fellows): Vernon DeMars, Berkeley, Samuel Zisman of San Antonio, Yama and Arch B. Swank Jr. of Dallas



Robert A. Alexander of Los Angeles with John Cabot of the National Park Service, Philadelphia; RECORD Publisher Robert F. Marshall and Robert F. Hastings of Smith Hinchman & Grylls, Detroit.



New president and first lady: the Wills of Chicago. Right: the group of Mexican architects who brought with them a proposal (under study) for a joint U. S. Mexican Planning Commission to be sponsored, at least in its initial stages, by architects of the two



nations—President Ramon Corona Martin of the Commission of International Affairs, Hector Mestre, Guillermo Rosell de la Lama (head of the delegation), Carlos Reyes Navarro, Gustavo Struck Bulnes and Jose Luis Reyes



New Yorkers Daniel Schwartzman, Geoffrey N. Lawford, Arthur Holden and Gordon Lorimer caught by the camera at a moment of not too serious caucus



RECORD senior editor James S. Hornbeck of New York and George Fred Keck of Chicago; another convention snapshot—at right, Walter Netsch of SOM's Chicago office



President's Reception again, this time the receiving line: first vice president Henry L. Wright and Mrs. Wright, Secretary J. Roy Carroll Jr. and Mrs. Carroll



Retiring president John Noble Richards and Mrs. Richards, new president Philip Will Jr. and Mrs. Will. A.I.A. had first non-public event at City Hall

1960 A.I.A. Convention

Camera's Eye View



A.I.A. Director of Staff Administration (and convention manager) J. Winfield Rankin, with Dean Thomas Mackesey of Cornell's School of Architecture and Prof. Gorm Hansen of Yale; Treasurer Raymond S. Kastendieck, Gary, Ind., and W. Newell Reynolds of Buffalo



New Yorkers Robert S. Hutchins, Geoffrey N. Lawford and L. Bancel LaFarge; and—on one of the benches in the lobby of the Masonic Temple—Charles Graves, Kentucky's architecture chairman, and Earl H. Reed of Chicago, A.I.A.'s chief guardian of historic buildings



Two new Fellows at the President's Reception after their investiture—Hugh Stubbins Jr. of Cambridge, Mass., and O'Neil Ford of San Antonio; and—back in the lobby of the Masonic Temple—Mr. and Mrs. Matthew Del Gaudio of New York with New England Regional Director Alonzo J. Harriman, Auburn, Maine



Two more between-sessions groups in the lobby—Kenneth Kassler of Princeton, another new Fellow, with Arthur Holden of New York; George Vernon Russell of Los Angeles with John Carl Warnecke Jr. of San Francisco, public relations chairman for the convention, and Paul Thiry of Seattle



Jack Warnecke again, this time with Neil Conner, director of architectural standards for the Federal Housing Administration, Washington, D.C., and San Francisco FHA Director Robert Macduff; and Sam Cooper and Chlothiel W. Smith, one of two new women Fellows



Old Cornell schoolmates Bob Alexander of Los Angeles, Shigeo Hirata of Tokyo and Lawrence Perkins of Chicago; and Emerson Goble, editor of the RECORD, with Polly Shackleton of the A.I.A. staff and panelist Henry D. Whitney of New York



Florida's new regional director, Robert M. Little of Miami, with Dean Turpin C. Bannister of the University of Florida and Linus Burr Smith of the University of Nebraska; retiring California Regional Director U. Floyd Rible with architectural students Richard T. Wedseltoft and Charles H. Shaffner, College of San Mateo



Edwin H. Lundie of St. Paul with Earl H. Reed of Chicago, chairman of the A.I.A. Committee on Preservation of Historic Buildings, and Paul Thiry of Seattle; and Wolf von Eckhardt and Ketchie Brassell of the A.I.A. staff with Edwin B. Morris Jr. of United States Steel, former assistant to the Executive Director of the A.I.A.



Richard Koch of New Orleans and Mr. and Mrs. Morris Ketchum of New York; Dr. C. Northcote Parkinson (center) with RECORD Publisher Robert F. Marshall, an executive vice president of F. W. Dodge, and Dr. George Cline Smith, vice president and chief economist



John M. Morse of Seattle, Vincent G. Kling of Philadelphia and George Fred Keck of Chicago; and George F. Pierce Jr. of Houston, former A.I.A. secretary Edward L. Wilson of Fort Worth and Albert S. Golemon of Houston



Two of New York's new Fellows, Geoffry N. Lawford and Lathrop Douglass, with the New York Chapter's executive secretary, Mrs. Margot Henkel; and Mrs. Roy Leible of Houston, Burdette Higgins of Des Moines and Western Mountain Regional Director Frederick H. Porter of Cheyenne, Wyo.



Architecture's singer of folk songs, Robert W. Schmertz of Pittsburgh, in his favorite role, and a lot of happy listeners crowded around him. Mr. Schmertz became a Fellow at this year's convention, but the more important news was that there are some new songs; one, called "Walter and Mies and Corbu," explains everything



San Francisco skyline from one of those terraces high up in the Mark, with Henry Wright of New York, Miami's Bob Little, and Edgar Tafel of New York; Prof. Gorm Hansen of Yale and Ralph Rapson, architecture head at the University of Minnesota



Happy trio of Californians—John Carl Warnecke Jr. and Mrs. Neil Smith, both of San Francisco, with William Pereira of Los Angeles; and a rather sober twosome, Robert Berne of Denver and Vincent G. Kling of Philadelphia



More program highlights—left, panelists Maynard Lyndon, Los Angeles, Walter Netsch, Chicago, and Robert Alexander, Los Angeles; right, John Richards and panelists Dean William Wurster of California, Henry D. Whitney, New York, and Harry Weese, Chicago



Robert W. Schmertz again, this time with Mrs. Schmertz and lei presented by an admirer; and Wayne S. Herzka of San Francisco, Mr. and Mrs. Robert Ingle Hoyt of Santa Barbara, Cal., Lee B. Kline of Pasadena, and Melton Ferris, executive director of the California Council, A.I.A.

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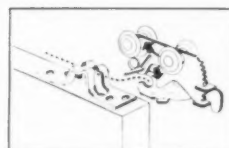
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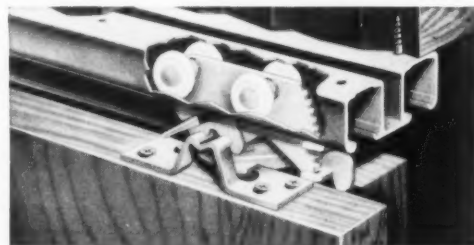
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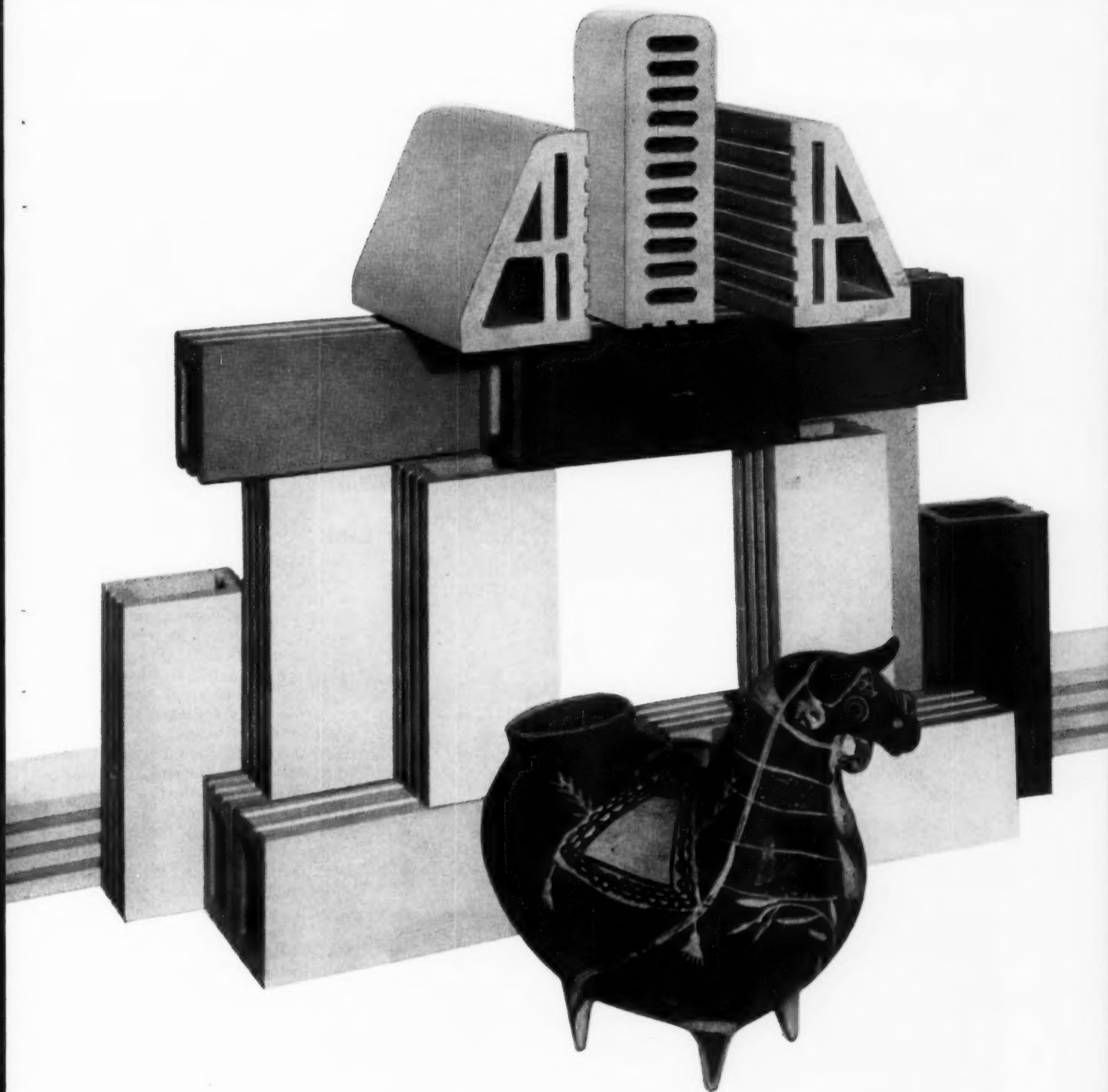


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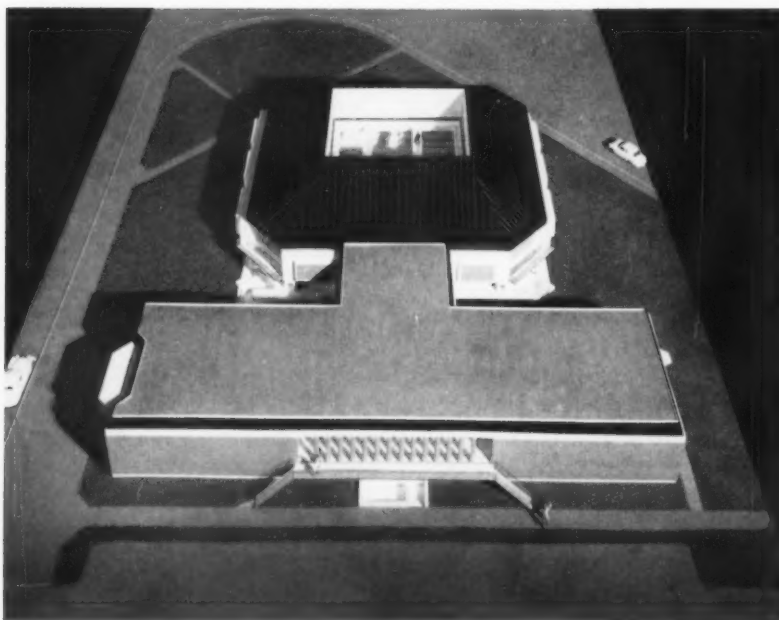
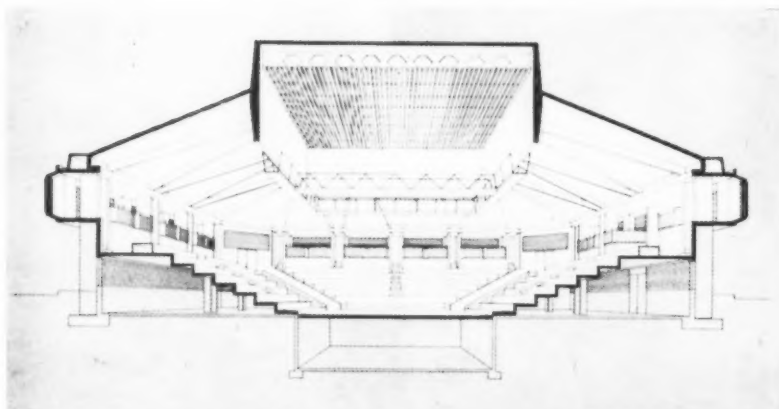


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Arena Stage: Theater Designed to Link Actor and Audience



A theater described by its architect as "an expression in architecture of the principles of arena staging" has been designed for Arena Stage, the ten-year-old resident theater company of Washington, D. C., and will be built (for occupancy in September 1961) on a triangular site adjoining Maine Avenue at Sixth Street Southwest within Washington's new Southwest Redevelopment Area. Harry Weese is the architect.

Key to the design is the arena-form itself, and, Mr. Weese says: "Unique to this form is its emphasis on the acting area and the audience as one, both in the same 'room' and joined in an equal relationship, the life of the stage and of the audience inextricably linked, thus comprising the essential difference between arena and the picture-frame."

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The auditorium surrounds a rectangular playing area 30 by 40 ft with tiers eight rows deep, themselves surrounded by a circulation aisle. Behind and above the aisle is a ring of boxes. The central stage is trapped in sections 3 by 6 ft, lighting grid hung from over central playing area. Structure is concrete and brick with rectangular fireproofed steel truss compression "ring" over stage with struts at four corners to steel H-beam tension ring over ceiling of perimeter boxes, concrete columns to footings.

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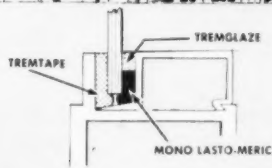
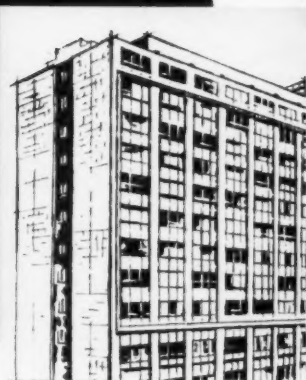
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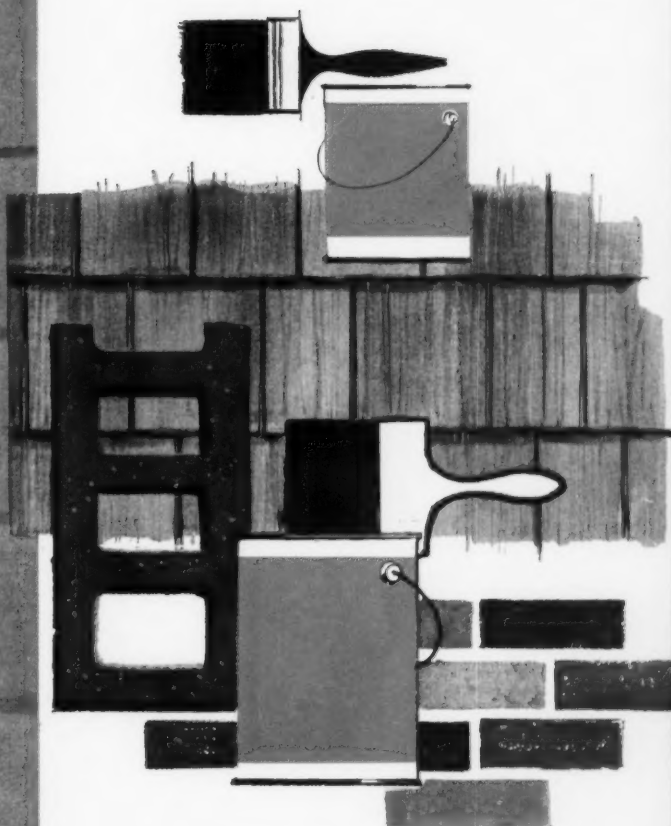
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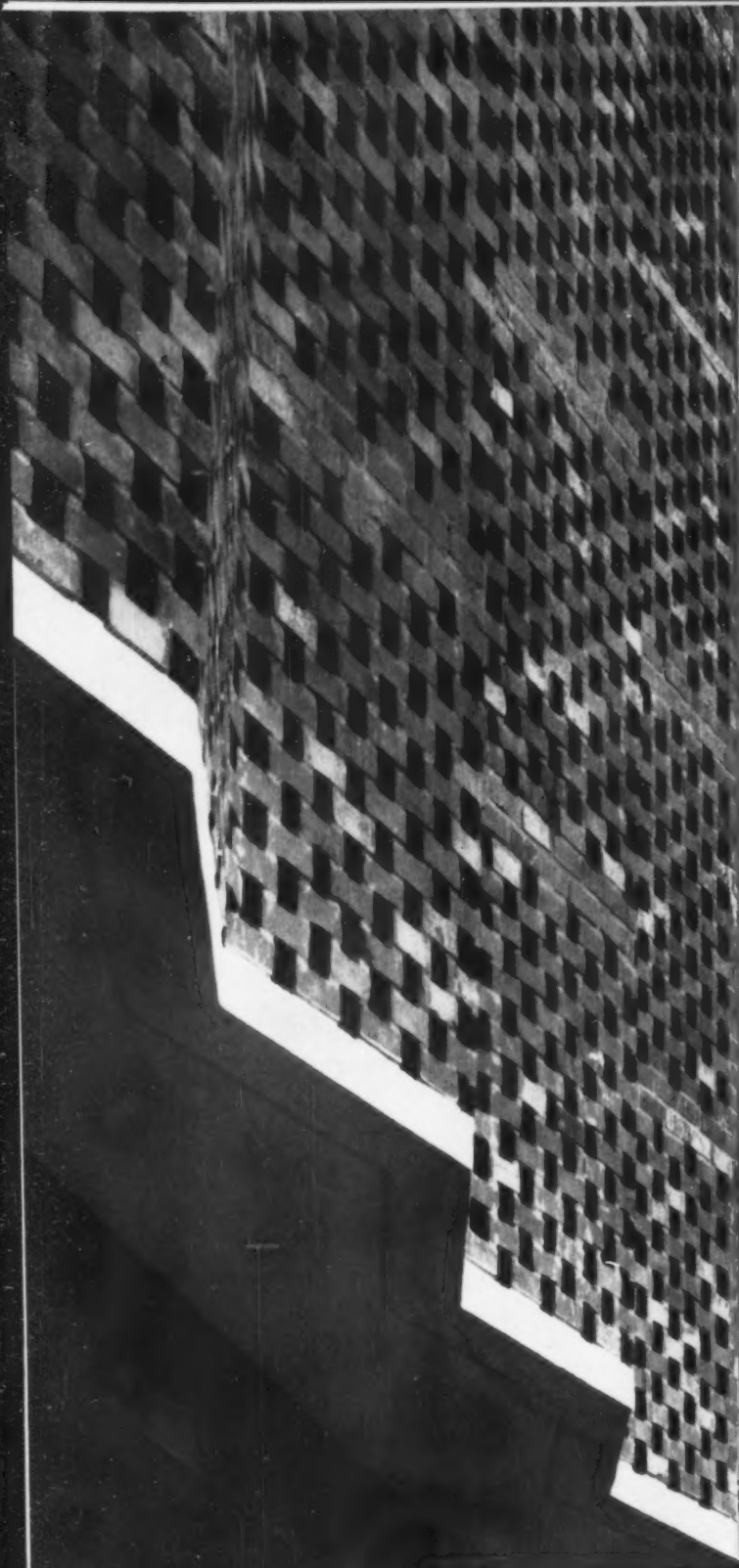
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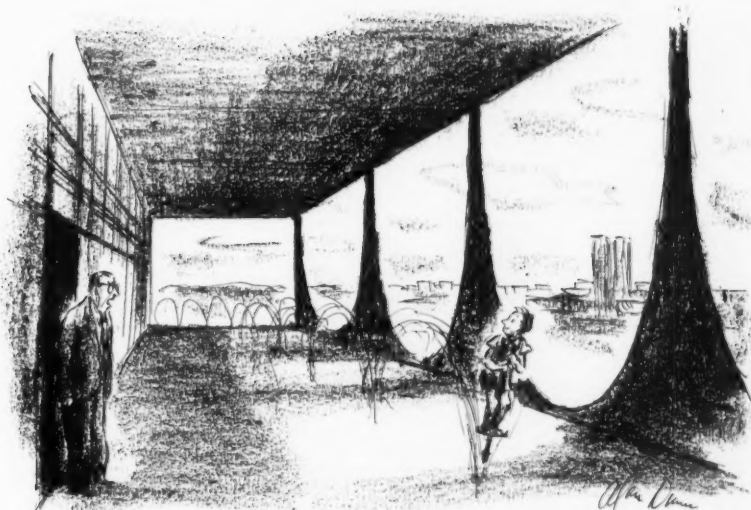


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New Conference Pattern Found By South Atlantic A.I.A.

Departures from the norm for architects' meetings were the rule at the South Atlantic A.I.A. conference in Winston-Salem, N. C., May 12-14. Instead of the usual speeches and panel discussions, there were ten seminars whose subjects ranged from "Psychological Aspects of Color" (given by a psychiatrist) to "Prestressed Extruded Concrete" (by an engineer). The seminars ran concurrently, but the whole program was repeated four times, so that it was possible for an individual to sit in on four different sessions.

All seminars and the business meeting were held in a tobacco warehouse (no tobacco was in sight). Many of the architects and their guests made their headquarters—not at hotels—but in the homes of local architects and others in the area. The meetings were leisurely. Distractions for the frivolous were many—among them a performance of Cole Porter's *Anything Goes*, an art film program, and a costume Beaux Arts Ball.

The high point of the program was A.I.A. President Phil Will's speech on the opportunities and challenges ahead of the profession and the steps required if architects are to take advantage of them and assume their full roles in society.

The awards jury, Gordon Bunschaft, Ralph Rapson, and Hugh Stubbins, gave an Honor Award to Thomas T. Hayes Jr., for his office building, Sanford, N. C., and Awards of Merit to Edwards and Portman for their Coggins Medical Building, Marietta, Ga.; J. Bertram King for Country Day School, Asheville, N. C.; and two awards to George Matsumoto for houses in Richmond, Va., and Chapel Hill, N. C.—William Dudley Hunt, Jr., A.I.A.

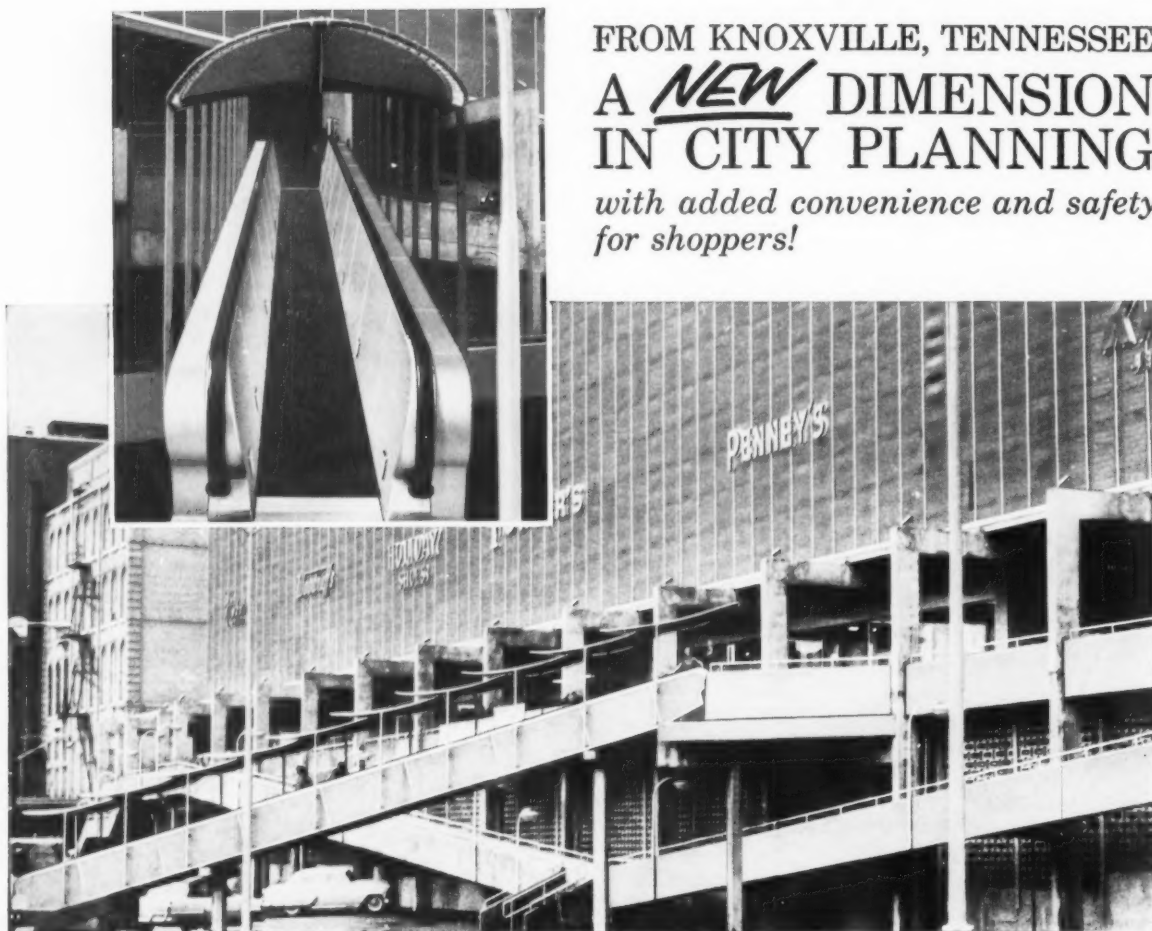
Walter Taylor Becomes a Dean

Ohio University at Athens, Ohio, this fall will inaugurate a School of Architecture in its College of Fine Arts, with Walter A. Taylor, F.A.I.A., as its director. Mr. Taylor has been, since 1946, director of education and research for the American Institute of Architects at its national headquarters in Washington, D. C. The Ohio degree of Bachelor of Architecture will require completion of a five-year program. The University now has a four-year curriculum leading to a degree in fine arts, with a major in architecture. Expansion of this program already has begun, so that several students will be well on their way to a five-year degree next fall; the first Bachelor of Architecture degree is expected to be awarded in 1963.

Honors for Architects

Four American architects were among 116 Fellows and 37 foreign honorary members elected to the American Academy of Arts and Letters May 11. The four: Wallace K. Harrison and Edward D. Stone of New York; William McIntyre Jewell of Boston; and Minoru Yamasaki of Detroit. Italy's Pier Luigi Nervi was made a Foreign Honorary Member. . . . Hugh Ferriss of New York has been elected to Academicianhip in the National Academy of Design, Ralph Griswold of Pittsburgh and L. Bancel LaFarge and Geoffrey N. Lawford, both of New York to Associate Membership. . . . Hugh W. Brown, III, of Shawnee, Okla., has been awarded the LeBrun Fellowship of \$3000 for six months' travel in Europe, the New York Chapter of the A.I.A. has announced. . . . John James Carlos, architect and editor of *Architectural and Engineering News*, has been awarded the \$3000 annual Arnold W. Brunner Scholarship of the New York Chapter, A.I.A. Mr. Carlos will use the award to complete a unit lesson plan for the teaching of architecture in secondary schools. Harold Edelman and Stanley Salzman, associate professors of architecture at Pratt Institute, also received \$1000.

more news on page 28



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Stephens-Adamson SPEEDWALK and SPEEDRAMP Passenger Conveyor Systems like the one shown at the Gay Street Promenade, Knoxville, Tennessee have added a new dimension to city planning. In an all out effort to modernize and beautify their stores, the merchants and property owners of Downtown Knoxville in cooperation with the Downtown Knoxville Association, Inc., have combined their

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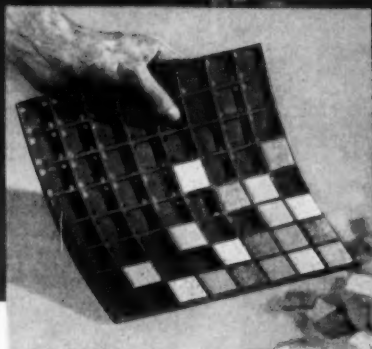
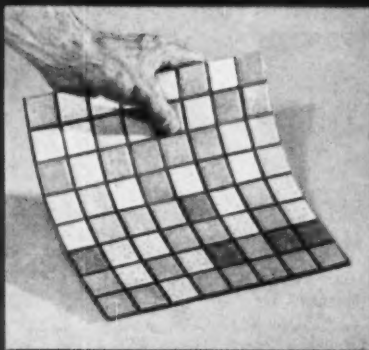


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CONSTRUCTION. Made of Romany • Spartan unglazed 1" x 1" ceramic tiles which are securely bonded in a flexible rubber grid.

DIMENSIONS. Ceramaflex flooring units are 9" x 9" squares...and 1/2" thick. Each Ceramaflex floor unit is composed of 64 ceramic mosaic tiles approximately 1" x 1".

FINISH. The surface of Ceramaflex is sealed at the plant with a protective coating to prevent wearing-in of dirt and grime.

COLORS. Random medley patterns in twelve handsome color combinations.

Meetings and Miscellany

continued from 25

C.S.I. ANNUAL CONVENTION EMPHASIZES THE TECHNICAL

That the prime objective of the Construction Specifications Institute is to encourage and provide better technical information was made plain at the C.S.I. Fourth Annual Convention, April 25-27 in Palo Alto, California. Of the six program sessions, four were technical, dealing with contract documents, control of construction quality, manufacturers' technical information, specification methods and the technical program of the Institute.

In his keynote address, President-elect Glen Abplanalp told the convention that for the year ahead he anticipated a budget exceeding \$100,000, the appointment of a full time technical director, increased cooperation with technical and professional societies, and more technical information through increased activity by the chapter technical committees.

From another quarter, James W. Cawdry, past president of the Associated General Contractors of America urged C.S.I. to stay in the realm of technical specifications. Mr. Cawdry stated earlier at the A.I.A. convention that the contractors feel C.S.I. should not get involved in the matter of general and special conditions which historically have been the province of A.I.A. and A.G.C.

This year's convention took account of the fact that quality construction depends not only on clear, accurate specifications, but also on the specification writer's awareness of the influences of codes, inspection and testing procedures and the realities of the construction process.

Getting accurate, complete technical information from manufacturers came up in several sessions. Panelists made the point that the specifier, of necessity, must rely on the manufacturer for accurate information on the quality, application and performance of his product.

Recognition of the contribution of the manufacturer to better specifications came in the form of floor discussions urging greater representation for the associate membership. A resolution was passed to permit associate members to serve as directors-at-large. Another resolution which would have given associate members equal voting rights was tabled, however.



Opening session: Robert W. Harrington, convention general chairman, presiding; Seated (l. to r.) George Lamb, Executive Secretary; Leonard Tivol, President San Francisco Chapter; Harry C. Plummer, Treasurer C. S. I.



Contract documents panel (Dallas and Houston chapters): David C. Baer, William P. Dunne, Terrell R. Harper, H. L. Murchison and Henry T. J. Martin



Construction quality panel (Los Angeles and San Diego chapters): Victor Wulff, Floyd Finnerty, Herman C. Light, LeRoy Crandell, E. L. MacDonald, Max W. Strauss



Left: David Todd, President New York Chapter, panel on manufacturers' technical information. Right: Ex-president J. Stewart Stein, Chicago and Vice-President Elect, James C. Bort, Chicago



Left to right: President-elect, Glen Abplanalp, New York; luncheon speaker Colonel Archie Higdon, Air Force Academy; Vincent G. Raney, San Francisco committee

What is the function of Armstrong Acoustical Fire Guard Tile in a time-design-rated assembly?

Armstrong Acoustical Fire Guard is the first time-design-rated acoustical ceiling tile. It has been tested in a number of different floor-ceiling assemblies. Both the tile and the assemblies have received time-design ratings from Underwriters' Laboratories, Inc., of one to four hours.

To earn a rating, the acoustical tile and its floor-ceiling assembly must do two things. First, they must resist the passage of heat. This is a function of the entire assembly—the tile, the concrete slab, the air space in the plenum chamber, and the structural steel supporting the slab.

Second, the floor-ceiling assembly must support a maximum load. This depends upon the structural steel supports. If they buckle, the assembly will cave in. The protection of these steel members is the function of the acoustical tile, and the acoustical tile alone. Only the tile stands between the intense heat and the structural steel.

Official assembly hourly ratings are established when the assembly fails on either count. Structural failure never has ended a test on Armstrong Acoustical Fire Guard. (This, in spite of the fact *unprotected* open web steel joists have buckled in the test chamber in seven minutes.)

Tests on Acoustical Fire Guard always have been terminated because of temperature rise above the entire assembly. This factor could be improved with a thicker concrete slab. Variations from tested assemblies which will improve the fire-retardant rating obviously are permissible.

Before you specify your next ceiling, consider Armstrong Acoustical Fire Guard. It will help you give your client a safer building—often at a savings in cost. For more information, contact your Armstrong acoustical contractor or your nearest Armstrong district office. Or write to Armstrong Cork Company, 4206 Rock Street, Lancaster, Pennsylvania.

 **Armstrong ACOUSTICAL CEILINGS**

1860-1960 Beginning our second century of progress



SPEAKMAN *Sentinel showers*

... the finest in the world, with balanced pressure, give showering enjoyment to families in many modern apartment buildings.

Once the bather sets the shower temperature... Sentinel holds it there. No danger from sudden surges of "icy cold" or "steaming hot" water.



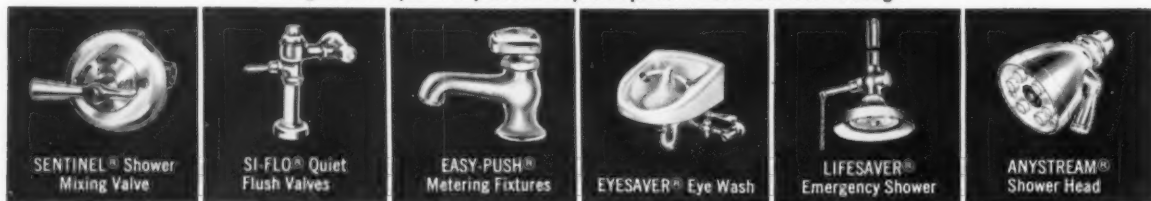
This SENTINEL SWITCH-BAK SHOWER with an Anystream Shower Head is a combination shower and tub filler. The ideal type for large apartment buildings. A turn of the handle on the Sentinel Valve permits water to run into the tub which can be diverted to the shower by lifting the knob on the Switch-Bak nozzle. Instantly, when the Sentinel Valve is shut off, the nozzle automatically again diverts the water supply to the tub.

Speakman Sentinel Valves provide SAFE showering pleasure in Chicago for tenants of 3900 Lake Shore Drive



Architect: Loewenberg & Loewenberg, Chicago
Consulting Engineer: William Goodman, Chicago
Plumbing Contractor: Economy Plbg. & Htg. Co., Chicago
Plumbing Wholesaler: Warren Barr Supply Co., Chicago

Investigate these Speakman products for proven performance and functional design



For 90 YEARS: Manufacturers of fine shower and plumbing fittings

SPEAKMAN COMPANY
W I L M I N G T O N 9 9 , D E L A W A R E



Harris BondWood Flooring—Par Oak

Many combinations of Oak, Maple, Walnut and Cherry are available.

ADDS HAND-CRAFTED RICHNESS AT NO EXTRA COST

and sometimes at less cost than ordinary parquet

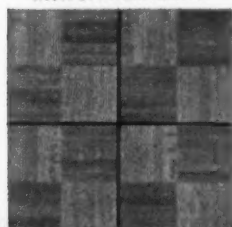
The beauty of Harris BondWood is centuries old — yet the cost of this distinguished hardwood flooring is often *less* than the cost of the common, the usual.

Recreated here is the craftsmanship of the old masters in Harris BondWood — an example of the beautiful geometric patterns in parquet. Sturdy Oak . . . durable Maple . . . fashionable Walnut . . . and distinctive Cherry are easily and perma-

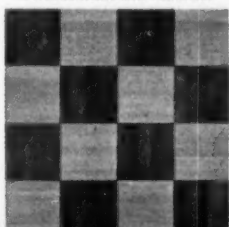
nently installed in adhesive on concrete or wood sub-floor. And the beauty is deep — a lifetime of service — slats are 5/16" of solid hardwood, not tongued and grooved.

Write for booklet illustrating the possibilities. See our catalog in Sweets'. HARRIS MANUFACTURING COMPANY, Dept. AR-60, Johnson City, Tenn. The Finest in Flooring since 1898.

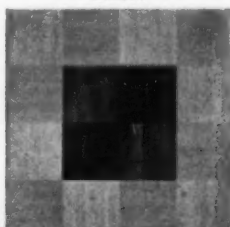
WITH DIVIDER STRIPS



CHECKERBOARD DESIGN



INSETS



HARRIS
BondWood® Hardwood Floors
A new concept of flooring beauty



The Record Reports

1960 A.I.A. convention

continued from page 10

"It is a sign that my work has been understood and appreciated by my colleagues.

"I am very grateful and very thankful for this distinguished token of esteem.

"May I also express, on this occasion, the deep gratitude I have always felt, and shall always feel, that I could come to this country and have the opportunity to teach and work here.

"The teaching forced me to clarify my architectural ideas.

"The work made it possible to test their validity.

"Teaching and working have convinced me, above all, of the need for clarity in thought and action.

"Without clarity, there can be no understanding.

"And without understanding, there can be no direction—only confusion.

"Sometimes it is even a confusion of great men, like the time around

1900, when Wright, Berlage, Behrens, Olbrich, Loos and Van de Velde were all at work, each taking a different direction.

"I have been asked many times by students, architects, and interested laymen: 'Where do we go from here?'

"Certainly it is not necessary or possible to invent a new kind of architecture every Monday morning.

"We are not at the end, but at the beginning of an Epoch; an Epoch which will be guided by a new spirit, which will be driven by new forces, new technological, sociological and economic forces, and which will have new tools and new materials. For this reason we will have a new architecture.

"But the future comes not by itself. Only if we do our work in the right way will it make a good foundation for the future. In all these years I have learned more and more that architecture is not a play with forms. I have come to understand the close relationship between architecture and civilization. I have learned that architecture must stem from the sustaining and driving forces of civilization and that it can be, at its best, an expression of the innermost structure of its time.

"The structure of civilization is not simple, being in part the past, in part the present and in part the future. It is difficult to define and to understand. Nothing of the past can be changed by its very nature. The present has to be accepted and should be mastered. But the future is open—open for creative thought and action.

"This is the structure from which architecture emerges. It follows, then, that architecture should be related to only the most significant forces in the civilization. Only a relationship which touches the essence of the time can be real. This relation I like to call a truth relation. Truth in the sense of Thomas Aquinas: as the *adequatio intellectus et rei*. Or, as a modern philosopher expresses it, in the language of today: *truth is the significance of facts*.

"Only such a relation is able to embrace the complex nature of civilization. Only so will architecture be involved in the evolution of civilization, and only so will it express the slow unfolding of its form.

"This has been, and will be, the task of architecture. A difficult task, to be sure. But Spinoza has taught

continued on page 44



THE TREE OF JESSE
An abstract design in a 25 foot high wall of thick sculptured glass set in cement.
Executed by Gabriel Loire in Chartres, France for the Basilian Fathers Noviciate, Pontiac, Michigan.
Architect, Charles D. Hannan, A.I.A.

LOIRE IMPORTS, Inc.
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we invite your inquiry

WESTERN SECTION EDITOR: *Elisabeth Kendall Thompson, A.I.A.**2877 Shasta Road, Berkeley 8, California*

The Regional Conference: A Unique Experience

Are A.I.A. regional conferences necessary? Can they be supplanted by national conventions?

There is a reason for asking these questions. The national convention has just been held in San Francisco, and another national convention will not be held in the West until 1965. The West is a long way from the Eastern cities in which the next four conventions will be held, and it will be the rare Westerner who gets to them. Meantime, what contact has he with fellow architects other than those in his own immediate locality?

The regional conference answers this need. But it is an answer that complements the national convention; it could never take its place. The national convention is the normal means of furthering the Institute's important business. But the regional convention is the Institute's unique means of reaching many of its members who can never get to a national convention, and of providing professional inspiration.

Yet in the proposed restructuring of the Institute, regional conferences do not figure in a very positive way as elements in the program. In fact, there is some question as to whether the proposal implies the elimination of regional conferences which, the booklet on the new structure says, "are not always successful" and "tend to compete with the national convention."

Regional conferences originated in the West, filling a need for inter-state fellowship and exchange of ideas among the architects of Washington and Oregon. (It was after the A.I.A.'s national Board of Directors had observed one of these conferences, at Hood River, Ore., that the regional conference became a definite part of A.I.A. program activities.) California had long held a California Council convention of its several state chapters, because its architects, too, wanted to exchange ideas and fellowship. The Western Mountain region conference came as the result of a grass-roots movement for the same reasons.

The West is a large area, and it is a long way—in miles and dollars if no longer in time—from the places where the majority of national conventions are held. The West's regional conferences have been tremendously successful—so much so that many Westerners never miss a regional meeting. The regional meeting is smaller, more leisurely than a national convention, and it offers the chance for a kind of fellowship which has become, through the years, much cherished among Western architects. The programs at these Western conferences have been, despite very small budgets, of top professional caliber—the kind of experiences that inspire, educate and assist in incalculable ways.

Speaking as a Westerner, and as one who has, for the last 13 years, been privileged to attend all of the Western conferences, I express my hope that the regional conference will always be a part of the Western states' professional activity. For it is the spirit that grows out of the regional conference, touching the individual and radiating through him to his locality, that realizes the Institute's purpose of "uniting in fellowship" and of "making the profession of ever increasing service to society."

E. K. T.

Apartments

APARTMENT CO-OP ON WATERFRONT: A variety of ways of enjoying the outdoors—lanais, balconies, small boat harbor at the doorstep, community recreation area—distinguishes this nine-story apartment building in Newport Harbor at the entrance to Lido Isle on the Southern California coast. The 42 units in the building will be sold, not rented. Developers include architect Burton Romberger of Newport Beach. Architects: Pleger, Blurock, Hougan and Ellerbrock



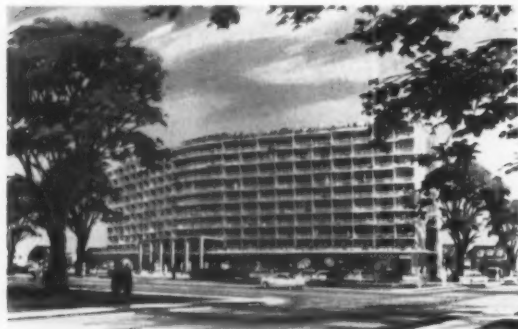
Dormitory

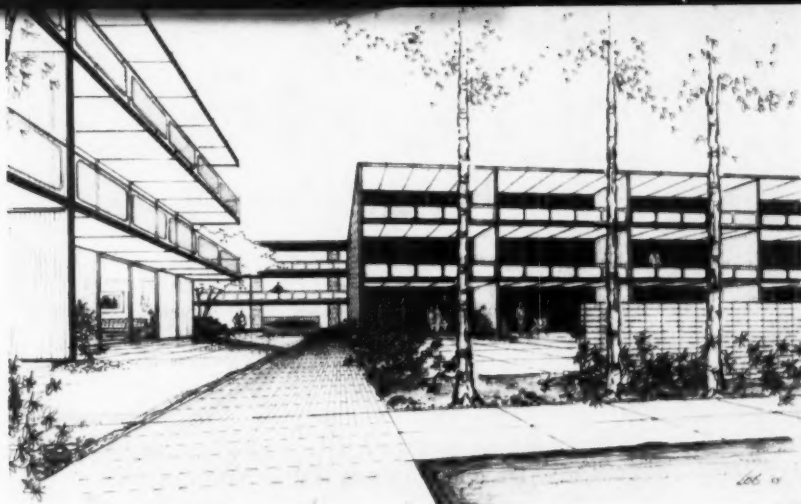
COLLEGE DORMITORY: Each of the two seven-story wings of this Women's Residence Hall at Washington State University, Pullman, Wash., will house 300 students. Between the wings is a two-story dining hall and lounge. Structure is reinforced concrete frame with prestressed slab floors. Exterior walls will be architectural concrete with stucco finish; spandrels will be precast sculptural panels. Estimated total cost is \$2,700,000. Architects: Walker, McGough & Trogon; University architect, Philip E. Keene; structural engineer, Lyerla & Peden; mechanical engineer, Lyle Marque and Associates; electrical engineer, Joe Doyle; landscape architect, Keith Hellstrom



APARTMENTS WITH MEDICAL CARE: Residents of Channing House in Palo Alto, Calif., a 10-story "retirement community" for people over 65 years of age, will receive complete medical service from the staff and facilities of a large clinic nearby as part of their lifetime lease arrangements. Apartment units vary in size from one to three rooms; each of the 320 units will have a lanai balcony. Besides a solarium and garden on the roof, there will be a solarium on each floor. Other facilities include guest rooms, infirmary, convalescent rooms, library, chapel, social hall and activity rooms. Architect: John Graham, Seattle

Retirement Communities





APARTMENT COMPLEX NEAR A PARK: The five-and-a-half-acre site of this 123-unit apartment complex is adjacent to a county park and to the Los Gatos River in Santa Clara County, Calif., so that it has an unusual degree of openness around its three-story buildings. Two-thirds of the site will be used for open space and recreation facilities—including two swimming pools, one of which is enclosed in an aluminum-framed fiberglass geodesic dome—with buildings covering the remaining acres. The buildings will be three stories high, and apartment units are designed with split-level plans. Architect: Robert McCabe, Sacramento; landscape architect, Philip Schaff, Jr., Sacramento

MULTI-UNIT BUILDINGS FOR LIVING

As the West grows more populous, its places to live—even in suburban and resort areas—increasingly include apartment and other types of multi-unit buildings. From college dormitories to old age homes, these new places to live are more specialized, of greater variety in type and amenities offered, and generally larger in size. But size has its dangers:

where there are scenic views to be had, zoning laws are being enacted to protect these views for residents of other buildings. The long drawn-out case of the Russian Hill apartment in San Francisco pointed a strong warning in that direction; and Honolulu has recently enacted restrictions along the beach at Waikiki to preserve character as well as view.

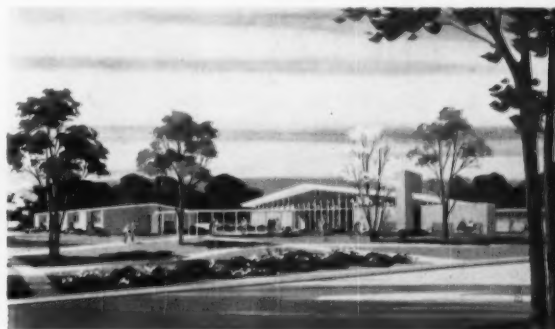
DOWNTOWN APARTMENTS FOR RETIREMENT: Horizon House, (lower left) a new 12-story apartment building for 250 retired permanent residents, is located on First Hill in downtown Seattle, within walking distance of the main shopping district and relatively near the site of the Century 21 Exposition. The \$4 million building will include a large lounge with a view balcony on each floor; landscaped roof terraces; infirmary; dining room, chapel, library and social hall on the main floor; recreational areas below grade; and two levels of parking. Architects: Durham, Anderson & Freed, Seattle

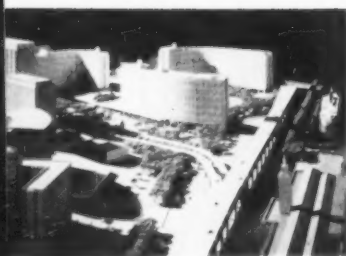
VILLAGE LIVING: Mt. San Antonio Gardens of Congregational Homes offers a village, rather than an institution, approach to retirement living. Located on 13½ acres at Pomona-Claremont, Calif., the one-story residence units provide a variety of accommodations: from cottages, efficiency apartments and suites to apartments; landscaping includes esplanade, mall, pools, terraces and patios. Façades will be varied to avoid monotony and emphasis is placed on small gathering points such as the central lounge for each group of residence units. Architect: Kenneth Lind Associates, Los Angeles (shown at left below; detail in center)

RETIREMENT COMMUNITY: The small units of this project for Senior Homes of Colorado are in line with one trend in retirement community planning which emphasizes decentralization of living units. Such a scheme is suitable when the location is, as here, on a large enough tract of land to permit adequate outdoor space between units. Architects: Eugene Sternberg & Associates, Denver (shown at right below)



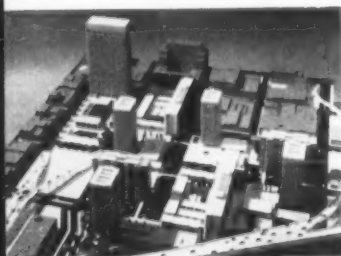
WESTERN SECTION





1. 2.

1. Skidmore, Owings & Merrill for Golden Gateway Center
2. Anshen & Allen for Eichler Homes, Inc., and Dinwiddie Construction Co.



3. 4.

3. Welton Becket & Associates and Lawrence Lackey for Kern County Land Company—Del Webb Construction Co.
4. Wurster, Bernardi & Emmons and DeMars & Reay for Perini-San Francisco Associates



5. 6.

5. Jan Lubiez-Nycz, John Collier and Philip Langley for Sidney Leiken Enterprises
6. John Carl Warnecke and Associates, Gardner Dailey, Victor Gruen Associates, Lawrence Halprin and Livingston & Blayney for Tishman Cahill Renewal Associates



7. 8.

7. Daniel, Mann, Johnson & Mendenhall and Corlett & Spackman for Barrett-Diversified-Lesser-Braemar
8. Angus McSweeney, Donald Beach Kirby and Loubet & Glynn for Utah Construction & Mining Co. and Henry C. Beck Co.

Who Will Do the Golden Gateway?

Last fall an advertisement appeared in newspapers all over the country which read: "Notice to developers: San Francisco is ready to go ahead with its fabulous Golden Gateway Project. Qualified developers are now invited to submit proposals for two portions of the Golden Gateway Project: (1) mall, garage and tower (suitable for apartments or offices); (2) a 2200-unit high rise residential development." To the surprise and gratification of San Francisco's Redevelopment Agency, which had run the ad, nine developers responded, each with strong financial capacity and each with a well-known architectural firm on its team as master-planner for the architectural side of the proposal and designer of the buildings in it.

The Golden Gateway project is the redevelopment of the city's present produce district, an area roughly north of the Ferry Building and east of the Appraiser's Building and Jackson Square. It is an area with a tremendous potential, especially in the role of tone-setter for the redevelopment—whether public or private, it is destined to come sometime—of the whole section of the city between Market Street and Telegraph Hill, along the waterfront and inland to the west. The location, the potential, and the initial push it got from a public spirited citizens' committee have made this the most glamorous of the West's redevelopment projects, and the public is as excited about it as the planning and architectural professions. Thousands of people have visited the Redevelopment Agency's offices to study the models and drawings of the nine designs; thousands more have seen the exhibition on the project at the San Francisco Museum of Art.

One reason for the glamor that attaches to Golden Gateway is that the Agency and its executive director, Justin Herman, have given it a unique set of conditions. Although the Agency will make the final decision as to which developer gets the chance to build the Golden Gateway, the procedures leading up to this point make inescapable the Agency's consideration of the architectural solutions along with the offerings of the financial proposals. To guide the five lay members of the Agency in their consideration of the environmental values and architectural amenities of the various designs, the Agency asked a panel* of six architects and a mortgage banker to evaluate for them each design on its own merits.

Each developer and his architects was asked to make a half-hour presentation of his design proposal to the advisory board, and then was questioned

continued on page 32-14

*Architects Mario Ciampi (chairman), Lawrence Anderson, Henry S. Churchill, Louis Kahn, Morris Ketchum, Minoru Yamasaki; and mortgage-banker-developer Ferd Kramer

San Francisco's Number One Question

The advisory board evaluated each design but did no rating of proposals. Excerpts from their comments indicate their reactions to each. Before the hearings began, Zeckendorf withdrew his design, prepared by I. M. Pei with John Bolles and Ernest Born as consultants

1. "This has a marvelous serene quality, but what about regionalism? Could it be built anywhere else? . . . The buildings don't make themselves, but they do make space. They are really just twisted slabs which appear to have an air of finality, although they could go on. . . . This is a strong scheme, beautifully presented; it has bold ideas. Maybe the only way to get open space is this. But I don't know if this is the time for it. It should be provocative for the Agency because it is not easy to get clean, open land. But whether to get it you should have 720-ft-long buildings—I just don't know. . . . This scheme takes into account the city's grid system of streets and superimposes a new pattern with real values of living today; it's a scheme that would be unique in America. But while the buildings do create space, their actual form ought to be studied; variety and a change of pace within the area would keep them from being monotonous. . . . You have a tremendous responsibility in taking such a scheme. The buildings have to be absolutely beautiful—the most beautiful in the world. I think you have the capacity to do this, but in less capable hands, it would be a terrible thing to do."

2. "The analysis is clear and thoughtful but I question the deliberate accidental look: this is only good when it is accidental; when it is contrived, it is dangerous. . . . What you have done is awfully good. But I question how you did it. It offers a wonderful chance to develop sculptural unity by putting the quieter architectural expression below and blossoming out above, and so give some image to the man in the street of what the buildings are really like. . . . While the shopping center's location may not be ideal but the design's openness shouldn't be obstructed."

3. "The large buildings in the residential part of the project are well separated, but what about the proximity to the expressway? . . . A redevelopment project offers an incomparable opportunity for establishing a way of life, and we have so many ways to express. . . . The textures of the apartment buildings and the office building are not very different, even though with a close look you can see that they are different."

4. "This is a thoughtful scheme. The row houses here have an order which is good so I am not troubled by them. I like the casualness you have expressed, and hope it would be developed along the line you've indicated. . . . This design recognizes that the car has to be given expression in our way of life; it doesn't bury it but looks at it in all its stark reality. . . . I like the various levels; you can see something other than the car, and the "mesa" which the garage makes gives the opportunity for raising the small scale living units above street level. . . . The garage walls along the street are dedicated to the privacy of the living units; this is like the streets and walls in Japan where the streets are not involved with the private lives of the people who live behind them. . . . What is the difference between the slab and the 'point' towers? I take it the way of life is different in them, and possibly the scale of rents? . . . One of the strong points of this solution is that it allows the streets to run through naturally without harm to the project. Also, it recognizes the problem of noise and the freeway and places the buildings sufficiently far away to minimize them. . . . The 'Central Park' is very appealing in

position and function; it is a relief from the buildings."

5. "A daring and imaginative solution, but how do you reconcile the building's large scale with San Francisco's small scale residential character? Should it be restless as this is? . . . It is difficult to be objective about this design: it is a strong statement, a personal experience and one that would have an influence on people. It embodies growth and variety; it isn't stiff. But it needs restraint which would give it social and civic direction. And too much responsibility esthetically is given to the center. But it indicates the work of a man capable of ironing out these problems. . . . It has important imaginative quality of design, and is beyond the conventional wisdom of architecture today. It is a clear statement of what it is—apartment house living. . . . It is powerful; another like it couldn't be built. But two Eiffel Towers in Paris wouldn't do."

6. "I particularly like the identity one has through the architecture, so you know where you are; and the expert way in which the high and low buildings come together. The scale is intimate but separates into manageable areas. . . . The towers are serene and don't look like office buildings. But the buildings in one corner seem crowded and could stand some study. . . . I see the handsome drawings, but I am concerned at the trees being rather humble in the life of the buildings. Why not group them in their own way, not as the bird flies? The slab buildings are just long and commonplace. . . . Three-fourths of the garaging is underground, yet the landscaping doesn't seem to have changed; the trees on top of them are just like elsewhere. . . . I had thought that this area should be separate from the rest of the city, but I am convinced now that opening the project up to the city is the right approach."

7. "There is a kind of obvious glamour to the whole thing. But it is quite disturbing. I don't think it needs so much glamour. I would get tired of it. It lacks restraint, and it wouldn't add much to civic pride. . . . This statement is ambitious and impressive, but the project is visually unhappy and unsatisfactory. I believe that when you go home you should do so to peace and quiet, and I would be terrified by those façades! . . . One sees more building than Bay. I wonder if this project has been entirely successful in exploiting the view. . . . Why are the old people separated into one building? All you would see is various degrees of varicose veins and gray hair. . . . Today's thought on this is not to segregate. And why is it given so peculiar a character? . . . A strong approach to street functions and apartment entrances. But it's strong, but it needs more friendliness."

8. "You have a lucid and appealing argument about economics, but the design loses the quality of visual experience which is basic to San Francisco. I hope San Francisco's redevelopment will be equal to the visual experience of the city. I wonder what is your justification for a project which would give San Francisco a public housing look? . . . How do you solve the perspective so as to give a sense of variety without varying the building itself? I understand that economy is a factor in the design but this development along the waterfront? . . . Is the project applicable to San Francisco or could it be placed in any metropolitan city?"

Golden Gateway

Advisory board members Morris Ketchum, Louis Kahn, Mario Ciampi (chairman), in foreground; extreme left, Donald Reay; center back, Karl Treffinger; right, Geoffrey Fairfax, architects, with WB & E-DeMars & Reay model



Joseph Eichler, Robert Anshen, Curtis Dinwiddie and Wm. Stephen Allen present their proposal to advisory board (seated, foreground, with Ketchum standing)



Edgardo Contini, Lawrence Halprin and John Carl Warnecke with model of design submitted by them with Gardner Dailey and Livingston & Blayney



Nathaniel Owings in last-minute consultation with sponsors Edward Keil and Lewis Kitchen



Architects Donald Reay and Vernon DeMars, advisers Lawrence Anderson and Minoru Yamasaki, Donn Emmons and adviser Henry Churchill with model of Wurster, Bernardi & Emmons—DeMars and Reay design



T. K. Kutay, Los Angeles, and San Francisco architect William Corlett (right) just before presentation of large-scale model for Daniel, Mann, Johnson & Mendenhall—Corlett & Spackman design; sponsors' group at left



Western Construction Cost Indexes

Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc. Inc.

Labor and Materials: U.S. average 1926-1929=100
DENVER

LOS ANGELES

PERIOD	RESIDENTIAL		APTS., HOTELS OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL		APTS., HOTELS OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1939	112.0	112.1	116.1	117.8	117.0	97.2	93.6	103.7	104.9	106.2
1948	217.8	218.1	202.7	207.0	206.7	215.9	216.5	205.8	210.0	209.8
1949	215.8	212.9	211.0	215.3	214.6	207.0	203.2	209.9	212.4	210.2
1950	230.0	228.2	218.8	221.3	221.2	224.1	222.8	217.4	219.0	217.5
1951	249.7	246.6	236.5	237.2	238.9	241.0	239.5	235.1	236.9	236.6
1952	253.6	249.4	243.4	245.1	245.6	243.8	241.7	239.8	242.6	241.5
1953	259.6	254.0	255.0	260.9	258.1	250.5	246.5	252.3	258.2	255.3
1954	258.9	252.0	259.1	266.2	263.4	251.0	245.3	257.7	265.7	261.8
1955	266.6	260.9	266.3	273.2	271.7	262.1	256.6	269.3	278.0	273.9
1956	274.9	269.3	275.8	282.3	285.1	272.6	266.7	282.9	292.9	289.3
1957	281.3	272.2	285.4	293.1	296.4	275.4	267.9	292.8	303.3	303.7
1958	282.2	272.0	288.1	295.9	298.8	277.9	286.6	302.6	314.5	316.4
1959	288.7	278.9	295.2	302.9	304.8	288.7	279.1	314.9	326.9	327.6
Jan. 1960	291.7	282.1	299.2	306.5	310.4	296.3	284.2	322.4	335.1	333.5
Feb. 1960	292.3	282.7	300.0	307.1	311.0	298.6	286.0	324.6	337.0	335.5
Mar. 1960	293.2	283.0	301.5	309.5	312.8	297.6	285.0	323.3	336.0	334.5
% Increase over 1939										
Mar. 1960	161.8	152.4	159.7	162.7	167.3	206.2	204.5	197.4	220.3	215.0

SAN FRANCISCO

SEATTLE

PERIOD	RESIDENTIAL	RESIDENTIAL	APTS., HOTELS OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	COMMERCIAL AND FACTORY BLDGS.	RESIDENTIAL	RESIDENTIAL	APTS., HOTELS OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	COMMERCIAL AND FACTORY BLDGS.
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel
1939	105.6	99.3	117.4	121.9	116.5	104.4	96.7	119.2	125.3	118.7
1948	218.9	216.6	208.3	214.7	211.1	216.3	211.4	211.5	216.6	216.9
1949	213.0	207.1	214.0	219.8	216.1	214.2	203.9	220.7	228.5	225.3
1950	227.0	223.1	222.4	224.5	222.6	224.1	213.6	227.1	234.5	230.3
1951	245.2	240.4	239.6	243.1	243.1	245.1	232.7	247.7	255.8	251.0
1952	250.2	245.0	245.6	248.7	249.6	254.3	239.8	258.8	267.7	263.8
1953	255.2	257.2	256.6	261.0	259.7	254.8	239.0	262.7	273.6	269.5
1954	257.4	249.2	264.1	272.5	267.2	253.3	236.1	266.6	279.1	274.0
1955	268.0	259.0	275.0	284.4	279.6	260.6	243.3	273.7	287.3	282.4
1956	279.0	270.0	288.9	298.6	295.8	273.5	254.0	288.5	303.4	299.0
1957	286.3	274.4	302.9	315.2	310.7	275.6	254.0	298.2	313.1	311.2
1958	289.8	274.9	311.5	326.7	320.8	279.9	256.4	306.0	324.0	320.8
1959	299.2	284.4	322.7	338.1	330.1	291.5	267.8	318.8	336.9	331.8
Jan. 1960	304.7	289.2	329.5	345.7	335.7	296.7	271.8	326.0	345.9	338.4
Feb. 1960	306.1	290.6	332.7	347.8	339.9	303.7	277.1	333.9	354.6	347.0
Mar. 1960	304.9	289.4	331.2	346.6	338.7	303.3	276.7	333.4	354.2	346.6
% Increase over 1939										
Mar. 1960	188.7	191.4	182.1	184.3	190.7	190.5	186.1	179.7	182.7	192.0

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95
(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

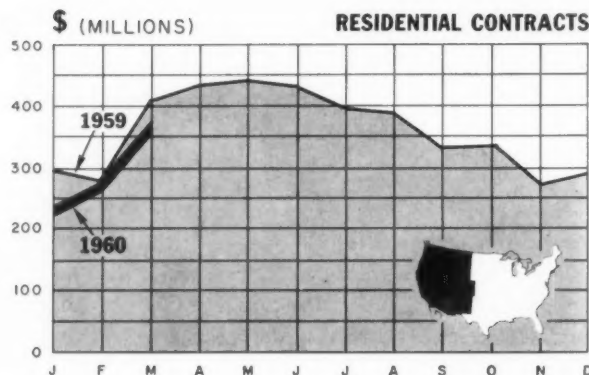
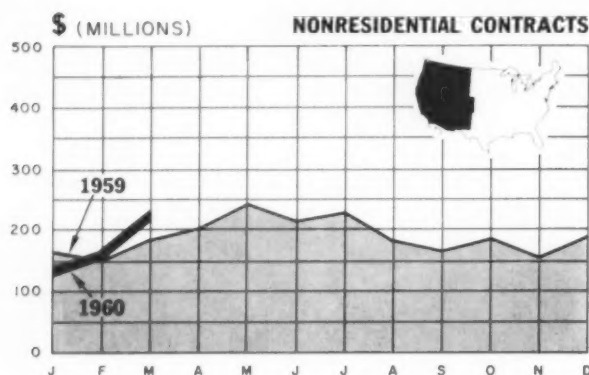
$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

Western Construction Trends

(For analysis of construction trends nationwide, see page 370.)



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Western construction continues to outpace the performance of the nation as a whole. March construction contracts in the 11 states west of the Rockies added further gains to the February upsurge and brought total construction contracts in the first quarter to within one per cent of the very high levels a year ago. (It seems worthwhile to point out that contracts in the first quarter of 1959 were some 21 per cent over the corresponding period of 1958!) In contrast, total construction contracts in the nation in the first quarter of this year were down six per cent from year-earlier levels.

Contracts in the West in March totaled about \$747 million, a gain of four per cent over March of last year. Impressive gains were scored in most nonresidential building types, and heavy engineering contracts also

showed a small rise. Residential contracts, on the other hand, continued to run below year-earlier levels by some nine per cent.

In the nonresidential sector, the sharpest dollar gain was registered by the commercial building category. Contracts for commercial buildings in the West in March rose a dramatic 58 per cent, sparked by several large office building contracts in Los Angeles county. Contracts for stores and other mercantile buildings were also strong in March. Educational, hospital, and recreational building contracts all exceeded their corresponding year earlier levels by more than 50 per cent, while manufacturing buildings maintained their gradual upward trend.

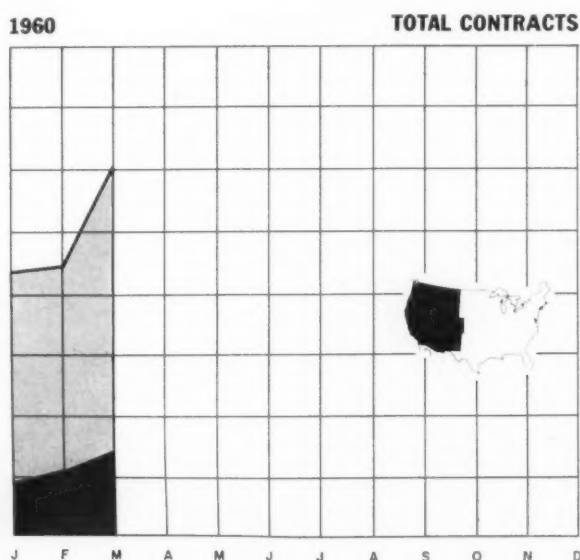
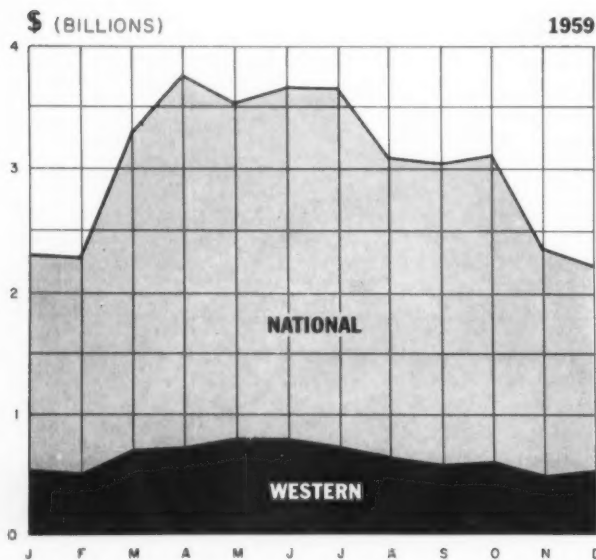
So far this year, the nonresidential sector has also been the strongest area of construction in the na-

tion, with contracts for the 48 states running five per cent over the same period last year. Undoubtedly, the nationwide figures reflect the excellent showing in the West.

For the remaining months of this year, the prospects for construction appear to be most favorable. Housing, the only relatively weak factor in recent months, seems to be at or near the bottom of its downward path and by the time mid-year figures are available may well be in a rising trend once again. With the downward pressures of housing subsiding, the continued strong showing in the nonresidential building category will begin to have even more of an effect in boosting the level of total construction contracts.

EDWIN W. MAGEE JR.
Economist

F. W. Dodge Corporation



F. W. DODGE CORPORATION

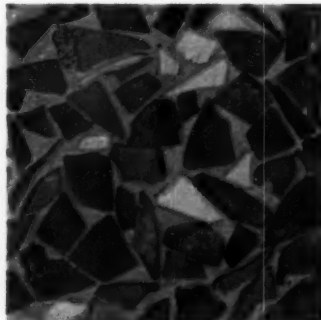
Total contracts include residential, nonresidential, heavy engineering contracts

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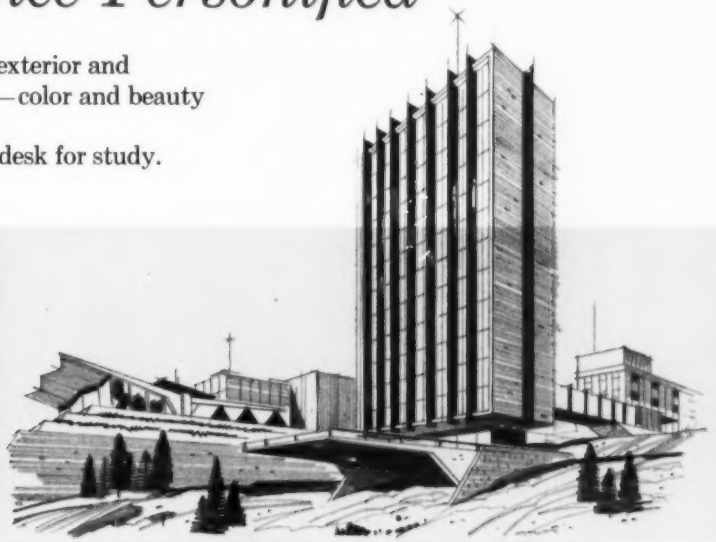
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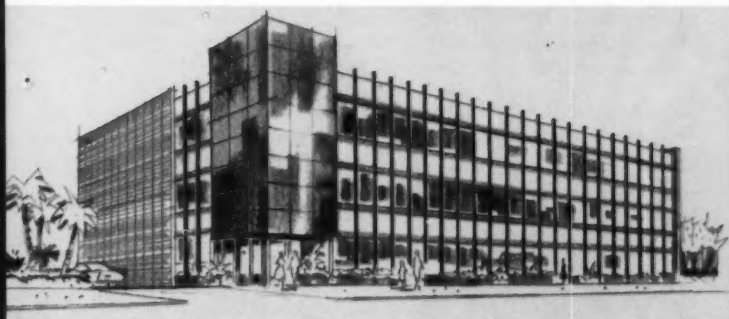
Turquoise Matte



Grey Facet



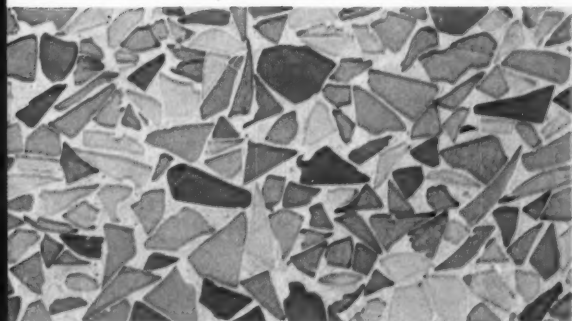
High Rise Apartment, Spokane, Washington.
Mosaica facing covers the end elevation with contrasting Mosaica panels in the wall system.
Dayton N. Holloway & Partners, Architect



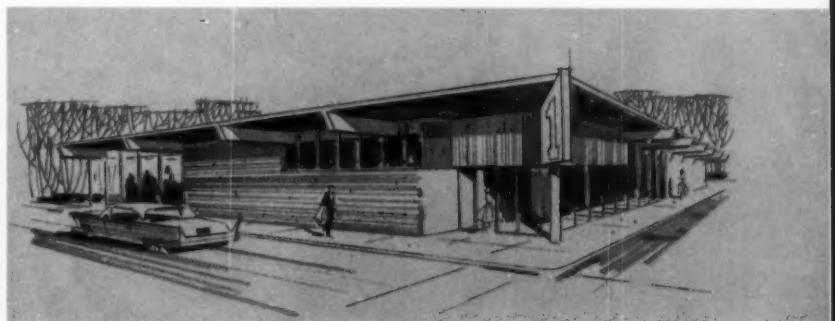
Office building, Los Angeles. Tower faced in black facet.
Lane & Schlick, A.I.A., Architects



Black Facet



Gold Facet

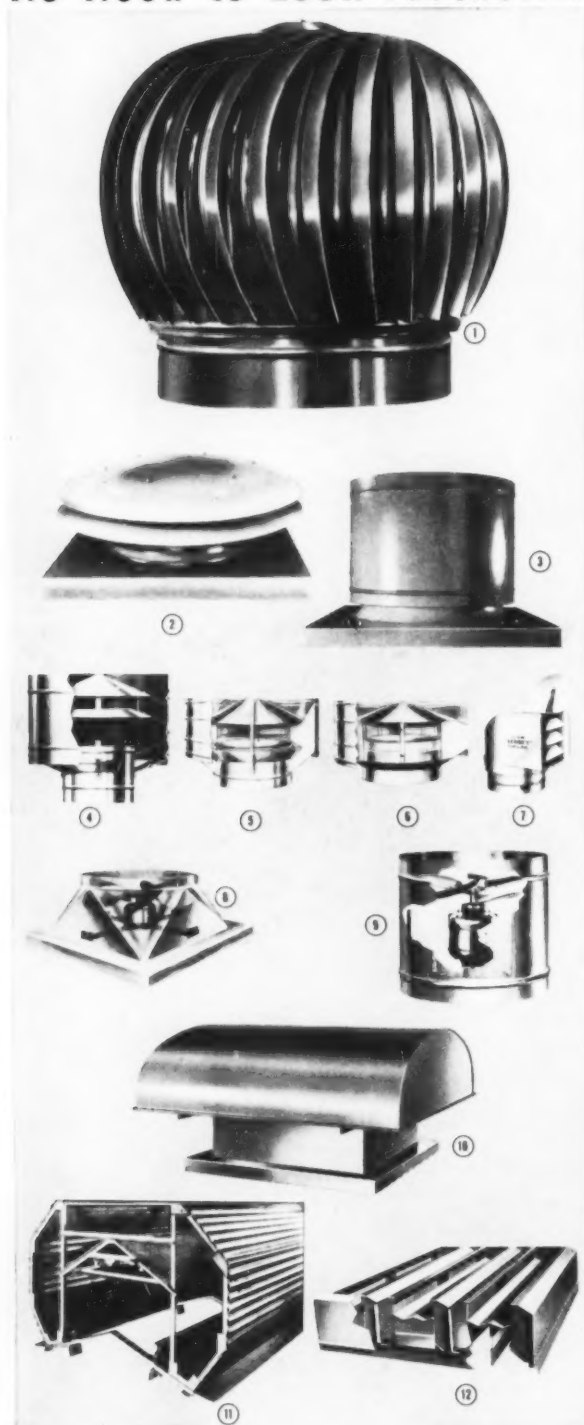


First National Bank of Oregon, Portland.
Exterior wall facing and entrance way column surround.
Jensen & Gilham, Architects

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Professional News

New Firms, Office Changes

Seattle architect *Charles Metcalf* has established an architectural office at 2925 Fuhrman Avenue.

A new partnership for the practice of architecture known as *Piel, Slater Small & Penst* has been formed by *Raymond Harry Ervin*, who will be consulting director of the firm. Offices are at 1500 Denver Club Building, Denver.

Seth M. Fulcher, architect, has moved to new offices at 700 West 100th Street, Seattle.

Robert Batchelor, architect, has moved his offices to Pier 3, Embarcadero, San Francisco.

Engineering Lecture Series Established

An annual series of engineering lectures to be known as the Mendenhall Lectures in honor of the sponsor, Irvan F. Mendenhall, recently named president of Daniel, Mann, Johnson & Mendenhall, architects and engineers, has been inaugurated at Harvey Mudd College in Claremont, Calif.

Elections and Appointments

Clarence Amos Wells, Los Angeles; *Arthur J. Swank*, *Cornelius C. Wheelchel, Jr.*, *Jean V. Kresser* and *Hubert L. Kertz* of San Francisco, have been made Fellows of the American Institute of Electrical Engineers.

Wimberly & Cook Architects, Ltd., of Honolulu announce the promotion of *Gerald Lou Allison* and *Gregory M. B. Tong* to the position of associate. Allison has been a designer with Wimberly & Cook since 1957, and Tong has been with the firm since 1955 as a draftsman.

T. K. Kutay has been appointed vice-president and member of the executive committee for Daniel, Mann, Johnson & Mendenhall, architects and engineers. He will be in charge of business development activities of the firm.

Raymond Itaya has joined the staff of *T. Y. Lin & Associates*, Van Nuys, Calif., consulting engineers. Itaya worked with the California Division of Highways and was a structural engineer with the California State Division of Architecture.

Awards

The Southern California chapter, A.I.A., recently announced the winners of its annual Certificate Awards for Craftsmanship and Draftsmanship. Craftsmanship and Draftsmanship awards went to *Tom Van Sant*, of Smith, Powell & Morgridge, architects; *Perli Pelzig*, Scandinavian Art Metals; and *Ernest Friedman*, of Standard Cabinet Works, Inc.

Draftsmanship certificates were given to *Tom Woo*, of Smith, Powell, & Morgridge; *Robert Emiston*, of H. L. Gogerty, architect; and *George Nelson*, of Welton Becket & Associates, architects.

Awards of merit for outstanding craftsmanship in the fine arts went to the *Roger Darricarrere Studio* for the stained glass in the Good Shepherd Lutheran Church, Long Beach, Calif., *R. L. Clatsworthy*, architect; and to *Bernard Rosenthal* for the sculpture in the Los Angeles IBM building, *Pereira & Luckman*, architects.

Richard J. Neutra, F.A.I.A., Los Angeles, Calif., recently became the first American architect to receive the Medal of Merit award given by the Wilhelm Exner Foundation of Vienna, Austria.

The University of Washington Alumni Association has named Detroit architect Minoru Yamasaki as the recipient of its 1960 "most distinguished alumnus" award. Yamasaki is a design consultant for Seattle's Century 21 Exposition and the architect for the fair's Federal building, a Hall of Science; he is also a member of the advisory board for the University's campus plan.

Obituaries

Burnham Hoyt, internationally famous for his Red Rocks Theater in Colorado, died in April in Denver at the age of 73. He had headed his own architectural firm in Denver until his retirement five years ago and was the architect for such Denver buildings as the Children's Hospital, the Boettcher School, Lake Junior High School and the new Public Library, and for the Colorado Springs High School.

A graduate of the Beaux Arts School of Design in New York, he taught at New York University's school of architecture and for a time served as its dean. While in New York City, he also worked in the offices of Bertram Goodhue and Pelton, Allen and Collins. Important commissions for which he was responsible include the interior design of Riverside Church and St. Bartholomew's Chapel. He was an associate member of the National Academy of Design and a Fellow of the American Institute of Architects.


Albert C. Martin, Sr., Los Angeles architect whose firm was architect for some 1500 buildings in Southern California, died April 9 in Los Angeles at 80 years of age. The firm of Albert C. Martin & Associates, which he founded in 1907, was four times honored by the American Institute of Architects for achievements in planning and design. Among the buildings for which he and his associates were responsible is St. Vincent's Church, Daniel Freeman Me-

continued on page 32-12

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Obituaries

continued from page 32-11

morial Hospital, Richfield Oil Building, General Telephone office building, Los Angeles Chamber of Commerce, many May Co. stores and shopping centers and, with John C. Austin and John Parkinson, the Los Angeles City Hall.

He is survived by his two sons, Albert C. Martin, Jr., and J. Edward Martin, both of whom continue in the firm.

Herman C. Baumann, San Francisco architect, died in April after a brief illness. He was 70 years old. Architect for many large apartment buildings in the San Francisco Bay area, he had maintained an office in San Francisco for many years.

Kaj Theill, structural engineer, died early in April in San Francisco. Born in Denmark and graduated from the University of Copenhagen, he was a member of the American Society of Civil Engineers, American Society of Danish Engineers, Structural Engineers Association of Northern California and the American Concrete Institute.

Architects' Tour Of Japan in October

The Sixth Annual Architects' Tour of Japan's architecture and gardens will be held October 6 to October 29 under the direction of Kenneth M. Nishimoto, Pasadena, Calif., architect. Architects will see both the "old" and the "new" Japan in visits to significant gardens and buildings from Nikko in eastern Japan to Beppu on the far western island of the country. Famous examples of architecture to be seen are: new Tokyo City Hall by Kenzo Tange, Corbusier's Museum of Modern Art and "Furisato" (a transplanted example of rural architecture in central Japan). The tour also includes visits to other scenic and cultural points of interest. Conferences with Japanese architects may be prearranged, according to Mr. Nishimoto.

The group will be limited to 25, so early registration is necessary. Information concerning the tour can be obtained from Mr. Nishimoto, 263 South Robles Avenue, Pasadena, Calif.

For Architects: Food for Thought

In answer to requests for "more intellectual food," the Spokane Chapter of the American Institute of Architects has inaugurated an "Architects' Study Club," which will hold its first meeting sometime this fall. The club will be a forum for new ideas on architectural subjects ranging from "architectural bedside manner to the pitfalls of compromising professional ethics," according to chapter president Kenneth W. Brooks. Each club member will present a paper during the course of two years. Meetings will include dinner "because of the social value inherent in the conversation" at such times.

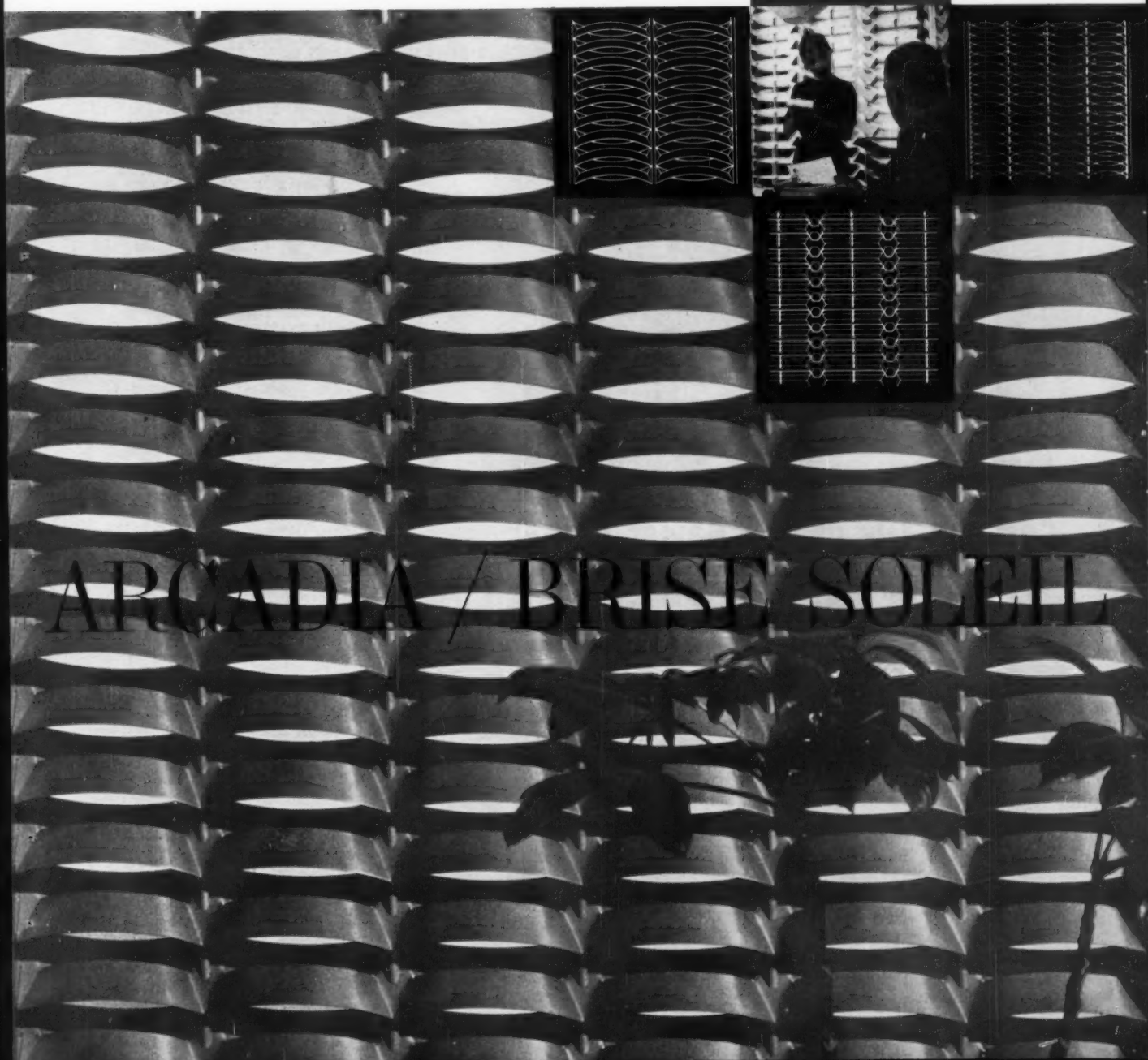
Through a continuing discussion of architectural problems—in design and in the office, the club hopes to contribute to the "expanding horizon" of the profession as a whole. Membership is limited to 20, but non-members may attend the meetings.

Announcing a new architectural concept for sun control

Arcadia Brise Soleil (*breez so-lay'*) culminates an extensive research program to fulfill the dual needs of modern curtain wall design: 1) scientific control of solar impact upon large glass areas, and 2) freedom of expression in achieving the architect's esthetic solution. Brise Soleil is a modular system of aluminum components. It can provide any required degree of shading, yet retain maximum visibility. It permits unlimited flexibility in design, either through variations of the three sculptured configurations shown below, or through custom fabrication of the architect's specification. A wide range of colors and finishes is available. It is based on a design principle which permits economic fabrication and maintenance. And, because it is a true sun control system, it offers the potential of cost savings in air conditioning equipment and operation far exceeding its initial cost. Brise Soleil is a new, and, we believe, exciting architectural concept. For added information, write Arcadia Metal Products

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Golden Gateway

continued from page 32-2

by the board. The board subsequently considered that design in private session before going on to hear about the next. All the board's evaluations were taped, and the edited version of these will become its report.

Unlike previous redevelopment architectural boards, this one was not asked to make any awards; its function was entirely advisory, not ju-

dicial. Nor was this an architectural competition as such. The primary competition is between the developers and their financial proposals. But because visual representation was required, architecture became an inherent part of the process.

Currently under way are considerations by the Agency of the financial proposals of each developer and appraisals of each design by representatives of key city departments. When all data have been assembled—

later this summer—the Agency will make its decision. Cognizant that on this decision rests much of the future appearance of San Francisco, the Agency has approached its task with gravity and a strong sense of responsibility; and the architectural presentations have given them an insight into the human implications of the decision which they will make.

But sitting through the hearings proved more than a duty responsibly carried out. As Everett Griffin, the Agency's chairman, says, "It was an exciting thing to be a part of that audience, hearing firsthand about these proposals, subject to the salesmanship, so to speak, of the architects who were presenting their designs. It gave us all more perspective, not only for these designs and the decision we will make about them, but for architecture in general."

That it was an educational experience for all who were privileged to attend—space for seats was at a premium, despite a conference room especially rented by the Agency for the hearings and for display of the models—everyone agreed.

The process followed on Golden Gateway may not be possible in all projects. In San Francisco's other two current projects, Western Addition and Diamond Heights, for instance, the process will probably be reversed: the financial proposals offered for the greater part of the parcels of land in the area will be the determinant as to which developer is the successful bidder. But the experience of Golden Gateway could be applied even in such conditions.

For Golden Gateway's significance is that the architectural values which will be bought by the expenditure of great sums of money and which will affect the living and working environment of thousands of people have been carefully, even soul-searchingly, considered; and that people, who have never before thought of these values, have had them clearly stated in words which they could correlate with models and sketches.

Fine as has been this process, it could be carried one step further, Mr. Griffin thinks, and the advisory board agreed with him. He suggests that what all redevelopment projects should have is better pre-planning—site evaluation by experts who can study it objectively before any requirements and program are decided upon. So simple a step may come.



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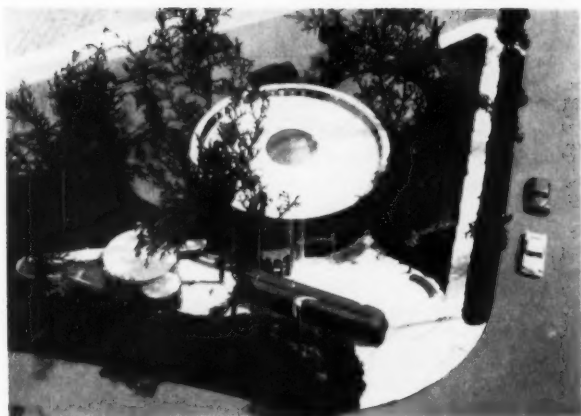
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Jules Klot

A ROUND FIREHOUSE IN A TRIANGULAR PARK

The challenge of designing a firehouse which would retain the original atmosphere of a small, triangular, pine-and-redwood-filled park in Berkeley, Calif., led the architects to design the building as a park pavilion. Circular shapes were used to relate the building to the site, to save most of the large trees in the park and to let the building be visible on all sides.

The firehouse-pavilion, now under construction, is divided into three elements: the central equipment unit with day room, kitchen and office unit on one side and an eight-man dormitory, bath and utility unit on the other. (The station has a 24-man staff which operates in three shifts of eight men each.) There are also central and private offices for the officer-in-charge.

Under the trees is a space for washing equipment, a drying rack, and a covered area where local newsboys can gather to fold their papers.

Structure of the central unit consists of 20-ft concrete columns, 4-ft o.c., with a post-stressed concrete ring at the top. Walls are of glass between the concrete columns. The flanking wings of the building use redwood on the exterior.

Architects are Ratcliff & Ratcliff; structural engineer, H. H. Wang; Robert Montgomery, mechanical engineer; Robert Z. Taylor, electrical engineer.



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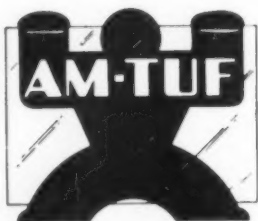
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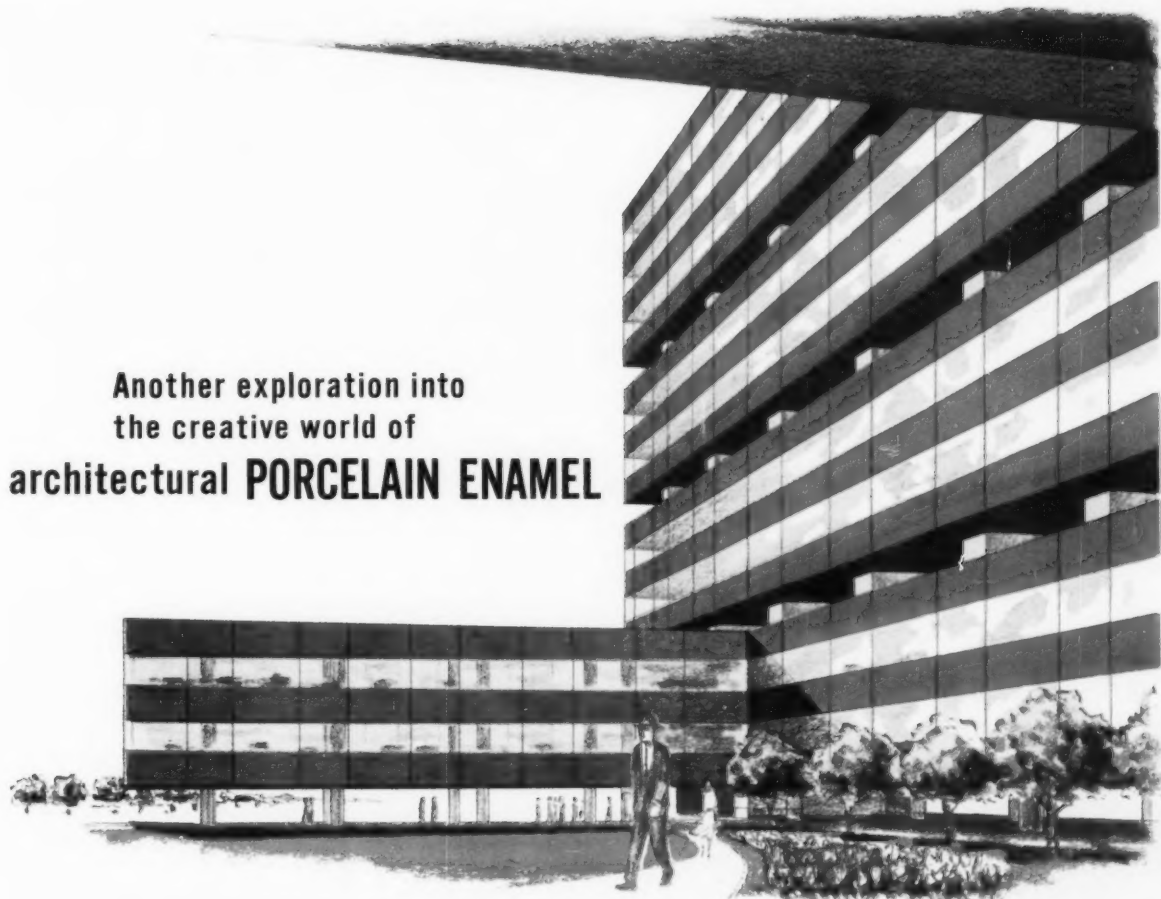
A town center containing not only civic but medical, commercial, financial and residential buildings has been master-planned for the city of Santa Fe Springs, Calif., a new community in the southern part of the state. Vehicular traffic will be prohibited within the town center, and landscaped malls and promenades will make access to all buildings easy for pedestrians.

By incorporating a wide variety of building types within the town center, the "life" of the area will be extended over a longer period than the usual nine-to-five hours in most American civic centers, the city and its architects, William L. Pereira & Associates, believe.



First buildings to be constructed will be city administrative offices and a library with a multi-purpose meeting room. Later, judicial facilities will be added. Since Santa Fe Springs is a new city, planning of the town center involves no redevelopment processes.

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Visiting Artists to Conduct Summer Sessions

Courses in ceramics, sculpture and painting will be offered at the University of California in Berkeley during the two summer sessions. John Mason, ceramic designer; Francois Stahly, Professor of Sculpture at the Cours Supérieur d'Esthétique of Paris; and Joseph Stefanelli, artist, will be the guest instructors.

The Summer Academy of Contemporary Arts at the University of Oregon will include a session on architecture from July 5-15, with Oklahoma architect Bruce Goff as instructor; and a session on painting conducted by Louis Bunce, who painted the controversial mural for the Portland International Airport, from August 1-August 12. Each instructor will give a public performance involving some aspect of his particular field during his residence at the Academy.

Capital Move Leaves Neutra's Embassy Stranded

The brand new \$2 million U. S. embassy building in Karachi, until recently Pakistan's capital city, will never function as an embassy. The capital it was intended to serve is moving away from it. Because Rawalpindi, a city in west Punjab some 700 miles north of Karachi, has a better climate, better communications, a more desirable situation geographically and would apparently have advantages for national defense, the Pakistan government has made it the capital city.

The building in Karachi, designed by Richard Neutra and Robert E. Alexander, will continue to be used by U. S. government agencies, which have not moved with the capital.

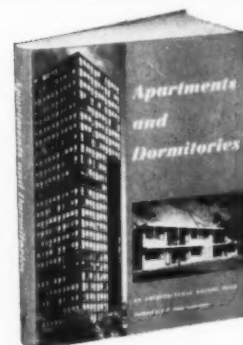
Dallas to Get New Federal Building

The new multi-million dollar Federal building for Dallas, Texas, will be a 16-story structure of reinforced concrete faced with granite up to the third floor and with marble, in a checkered pattern, above. The \$24 million air-conditioned building will house district courts on the two top floors and offices for 17 government agencies on its other floors.

George L. Dahl and the Office of Mark Lemmon are architects for the building.

the complete survey of multiple dwellings

APARTMENTS and DORMITORIES



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The next four sections are arranged as follows:

COMMUNITY-SCALE PROJECTS LARGE PROJECTS SMALL PROJECTS CAMPUS DORMITORIES AND APARTMENTS

Thus the entire range of multiple housing is covered, from huge apartment cities housing thousands of families, to small apartments for 2, 4, or 10 families. In the campus section are shown dormitories for men and women, and apartments for faculty members and married students.

Every one of these projects is the work of a gifted architect—some of these are famous, some are not yet. They include Edward D. Stone, Mies van der Rohe, Frank Lloyd Wright, and Walter Gropius.

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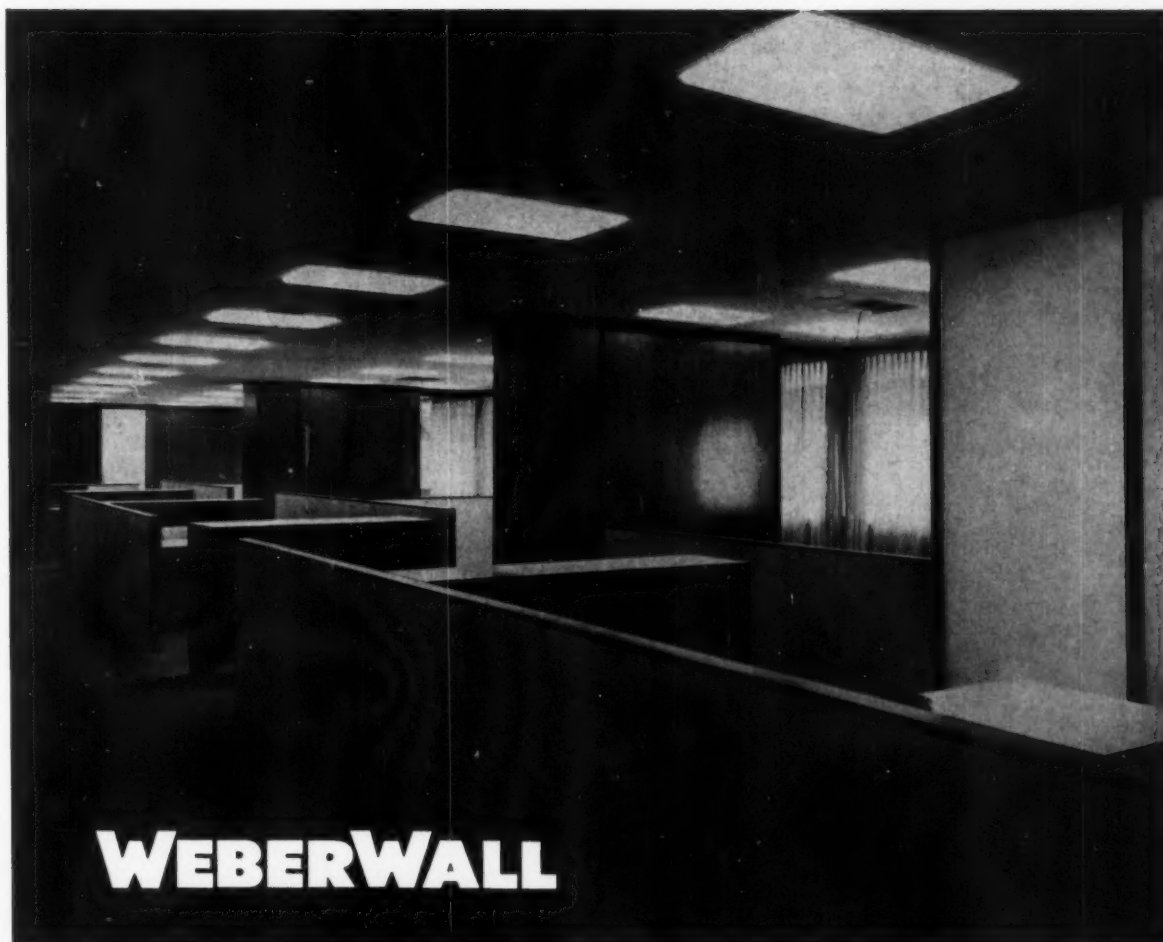
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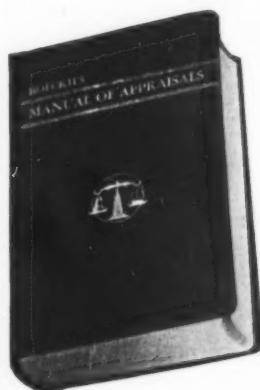
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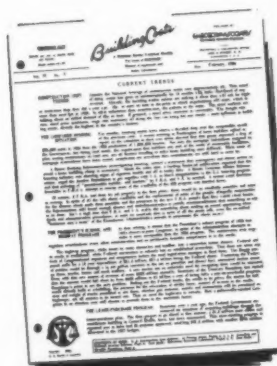
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Calendar of Western Events

- To June 12: "Forms of Israel," crafts exhibition, San Francisco Museum of Art, Civic Center, San Francisco.
- June 14-16: Pacific Home Builders Association convention, Sheraton Palace Hotel, San Francisco.
- June 19-24: National Parking Association convention, Jack Tar and St. Francis Hotels, San Francisco.
- June 20-24: American Society of Civil Engineers national convention, Reno, Nev.
- June 19-25: "The Corporation and the Designer," International Design Conference, Aspen, Colo.
- Beginning June 24: Exhibition of Japanese art, Seattle Art Museum, Seattle.
- July 3-August 2: Bernard Ralph Maybeck, photographs selected from Smithsonian Institution collection; Long Beach Museum of Art, Long Beach, Calif.
- August 4-14: Construction Industries Exposition—Home Show; Los Angeles Memorial Sports Arena, Los Angeles.
- August 7-14: International Congress of Gerontology; Masonic Memorial Temple, Mark Hopkins and Fairmont Hotels, San Francisco.

WESTERN SECTION

Index To Advertising

Manufacturers' Pre-Filed Catalogs of the firms listed below are available in the 1959 Sweet's Catalog Files as follows:

a Architectural File (green)
ic Industrial Construction (blue)
lc Light Construction File (yellow)

Arcadia Metal Products	32-13
Boeckh, E. H. & Associates	32-20
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Coyne Tempered Glass Co.	32-16
Davidson Western Plywood Co.	32-18
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Western advertising offices: LOS ANGELES, Wettstein, Nowell & Johnson, Inc., 672 S. Lafayette Park Pl.; PORTLAND, Wettstein, Nowell & Johnson, Inc., 921 S. W. Washington St.; SAN FRANCISCO, Wettstein, Nowell & Johnson, Inc., 417 Market St.



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Clear Water Repellent



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All the natural warmth and beauty of genuine redwood, plus the advantages of factory controlled priming, are yours in Lifecoat... an exclusive process which bonds a high quality prime coat to top grade, Certified Kiln Dried redwood siding. Lifecoat saves up to 40% in finishing costs. It eliminates back priming... *can be installed in any weather.* Select from six finishes, packaged in all standard patterns and S4S for fascia and trim. See your lumber supplier for full details or mail coupon on inside pages of this insert.

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Lifeclad prefinished plywood and matching doors have the rich warmth of hand rubbed wood, yet cost far less. Here are handsome grained finishes that do not fade or discolor... wipe clean without a trace. At last you can put real beauty and durable utility into any room, economically... Lifeclad provides the luxury look, perfectly protected by a tough vinyl finish. For details and actual Lifeclad samples, mail the attached coupon.



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LIFECLAD PREFINISHED PLYWOOD AND DOORS
join an evergrowing list of product innovations from the Simpson Research and Development laboratories. Products designed to make construction easier, faster, more efficient and economical...and to add warmth and beauty to your buildings as only wood products can. Information on other Simpson developments is given on the outside pages of this insert.

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Asphalt-Impregnated Roof Insulation
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Bifold Doors (Flush and Louvered)
Seven-Eleven Ceiling Height Doors
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7-Ply Hollow Core and Solid Core Flush Doors
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Lifeclad grained finishes earned the PARENTS' MAGAZINE Commendation Seal after comprehensive product testing and evaluation by their Consumer Service Bureau and

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Lifeclad plywood and doors are factory-made by a patented process which laminates a clear vinyl plastic film to selected plywood, creating a permanent, natural wood grain. You've never seen prefinished paneling as Lifeclad!

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ARABIAN SANDALWOOD finish—The formal grace and dignified warmth of Arabain
Sandalwood's tight grain blend handsomely with any color scheme or furniture style.

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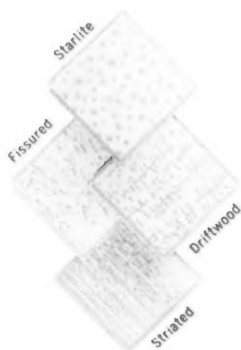
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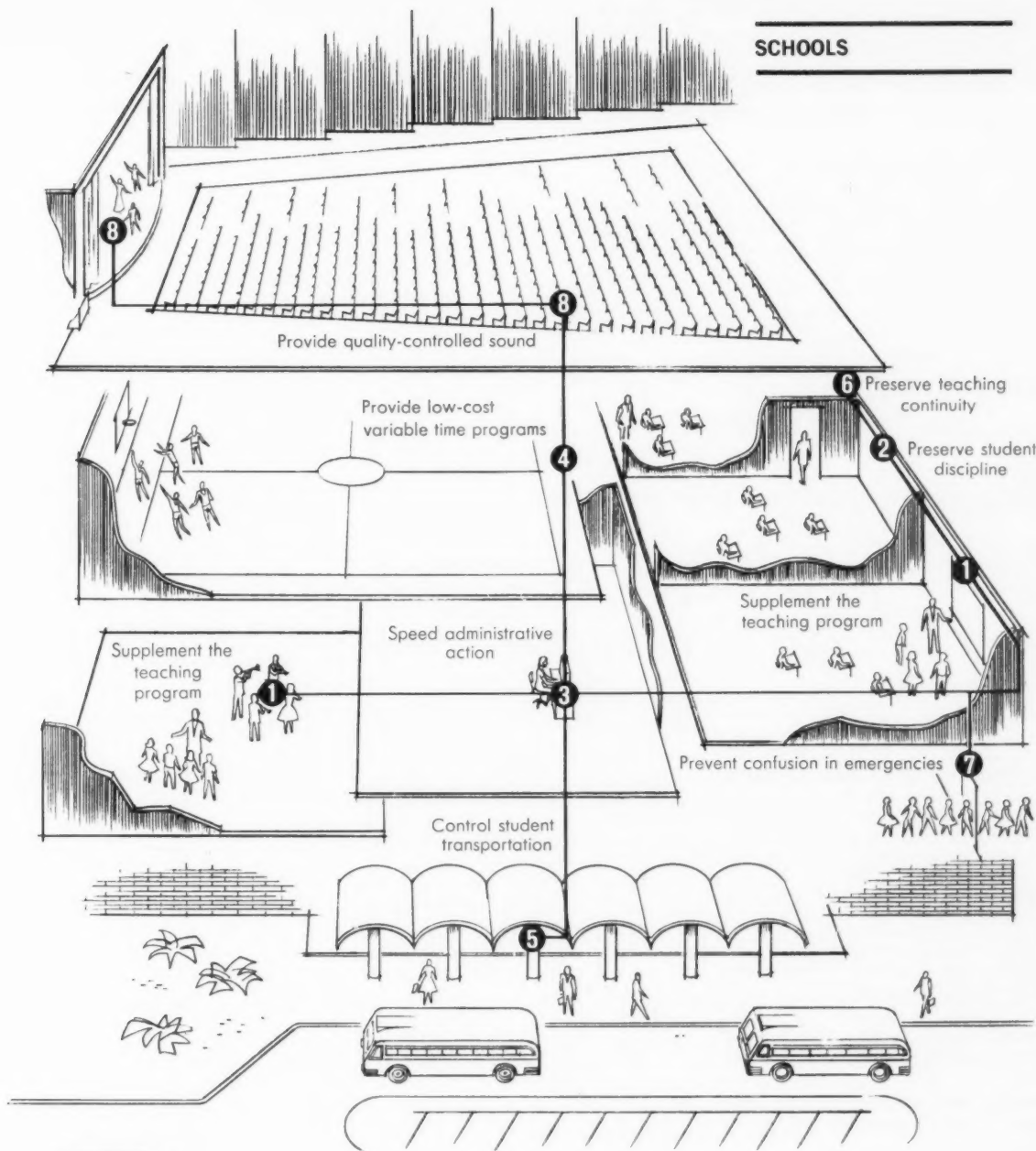
For further information refer to Sweet's File or call your Simpson Certified Acoustical Contractor (listed under Acoustical Materials in the Yellow Pages). Mail coupon on inside pages of this insert for free Acoustical Catalog.

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RELY ON
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SCHOOLS



8

economical ways to use sound and communications . . .

**to enrich school curricula
and improve administration**

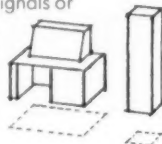
Few architectural means at your disposal can do more to broaden a school's educational program and improve its management than functional sound and communications. Several such services are described on the following pages. You will also find an unusual offer of technical assistance in pre-planning a system to fill any set of needs.

This kind of pre-planning provides you with expert guidance in layout and specification . . . helps you present to your client a variety of useful functions based on aptness of design rather than additional expense . . . assures easy maintenance, good appearance, and any degree of expandability . . . to fit any budget.

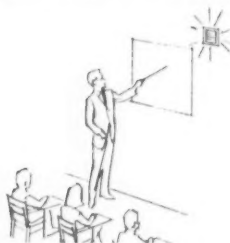
Executone 

How to get the most out of communications and sound in SCHOOLS

The console shown here is the central control of an Executone sound-communication system for an average-sized K-8 or secondary school. Located in the General Office, it handles switching, programming, transmission and power amplification for all the services described below—and others that your client's special requirements may suggest. Its 5-channel capacity eliminates the need for more than a single conduit for signals or communication between any two points in the system. Identical functions are available in a vertical console, for use where office space is at a premium.



1. Supplement the teaching program with sound



Educators today attach great importance to audio-aids in the class room. They wish to exploit sources of special teaching materials...to place each class in closer relation to the school and the world around it...to develop each student's critical faculties. They value the availability of:

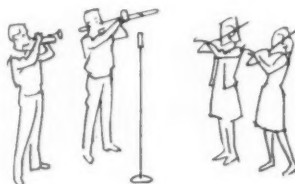
Radio broadcasts: speeches; music; coverage of special events; interviews; important dramatic presentations; sessions of Congress; etc.

Recordings: from an ever-increasing fund of educational material on tape and discs.

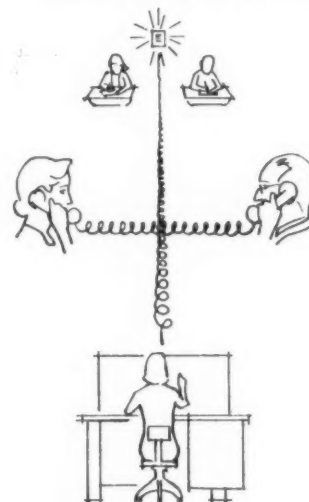
Transmissions from other parts of the school: student musical programs; sports events; etc.

Recording and play-back facilities: for classes in choral and instrumental music; language and speech courses; drama workshops; etc.

All these audio-aids can be supplied by a single Executone classroom reproducer... the same instrument that handles time signal, alarm and intercom functions. With a standard Executone system, any combination of rooms—chosen by selector-switches—can receive either of two simultaneous sound transmissions. Reproduction is of unusually high quality. Where recording and play-back are desired, rooms need only be supplied with microphone and tape-deck jacks. Amplification takes place at the main control console.



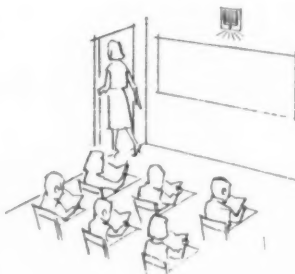
3. Speed administrative action: relieve over-burdened staff



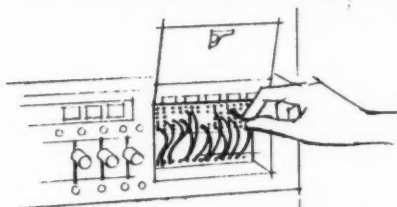
Freedom to teach—and to work more productively—is one of the best answers to the chronic shortage of teachers and administrative personnel. Time savings increase in direct proportion to the staff's communication capabilities. Today, these can economically include: A) 2-way electronic voice intercom... between the office and any classroom... with complete privacy safeguards. B) Private-line room-to-office and room-to-room intercom... with call origination from any point. The Executone system offers all the above, providing 2-way remote-reply intercom through each classroom speaker... optional private-line handset communication using an independent channel carried by the same wiring.

2. Preserve student discipline during unsupervised intervals

When teachers must leave their classes, the maintenance of discipline usually depends on the presence of a substitute. Faculty members may now be relieved of this non-productive extra duty. Unattended students can be monitored from the Office—through the Executone speaker—and notified by its open-line signal light that they are under remote supervision.



4. Save money & space in providing variable time programs



Classes with varying time requirements need no longer be subject to an inflexible set of signals. But conventional time-programming equipment—including independent crossconnect panels, relay racks, classroom buzzers and wiring systems—is bulky and expensive.

The Executone system includes a remarkably compact, easily accessible peg-board programmer—which allows each classroom to be placed on any one of six different time programs within seconds. This function is built directly into either standard console! The costly conventional system is eliminated.

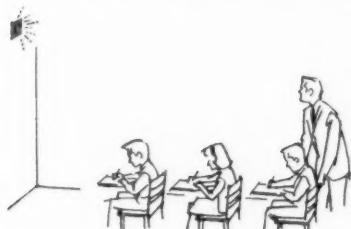


5. Control student transportation

Teachers find it especially difficult to keep order—and prevent delays—when restless students must await loadings of homeward-bound school buses. This condition is relieved when children are permitted to play freely—until summoned to the loading area in proper groups and directed to their buses.

This can be achieved through an inexpensive adjunct to the Executone system: a microphone jack at the loading area and speakers at loading and congregation areas. Both microphone and speaker wiring run in the same conduit. The amplifiers at the main console are utilized. Any available microphone can be plugged in at dismissal time.

6. Preserve the continuity of classroom activities



Communications in the modern school go a long way toward assuring uninterrupted class activities. But care must be taken that the facilities which make this possible are not themselves a disruptive influence. This is the case where calls make it necessary for teachers to drop what they are doing, to approach or handle equipment . . . or where a call interrupts a sound transmission.

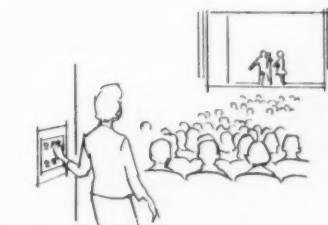
Executone removes both of these contingencies. Through-the-speaker calls, for brief conversations, can be answered by the teacher from any point in the room—without raising her voice. And use of the optional handset channel for longer conversation prevents interference with concurrent sound programs.

7. Prevent confusion and panic in emergencies

Leading administrators have long felt the need for greater control of student bodies in emergencies. They seek alarm signal facilities to augment standard fire alarm systems—for such special contingencies as air raids. To control student movements in critical situations, they wish to make it possible for any staff member to broadcast voice instructions—without having been trained in the use of sound equipment.



In the Executone system, the same components used to produce time signals will also provide supplemental alarms. Executone furnishes duplicate signal generators—for fail-safe standby duty. For follow-up voice instructions, after an alarm, a staff member need only touch the 'emergency' bar at the Executone console. This overrides all other transmissions . . . allows him to speak immediately to the entire student body.



8. Provide quality-controlled sound for audience activities

No audience facilities are so intensively used as those in the modern school. Auditoriums and gyms serve not only during the school day—but also for adult and community activities . . . for socials and special events. Sound reinforcement equipment must be designed to high standards. And controls must be efficient. Conventional microphone mixing units—because of A-C power, ventilation and space needs can seldom be situated where they do most good.

An Executone system provides not only sound reproduction of highest quality, but also new flexibility in the location of controls. Transistorized preamplifiers and mixers are compact enough for concealment anywhere . . . have no special installation requirements.

On the next page . . . an offer of unusual benefit to you and your client!

Executone



How to get the most out of communications and sound

Executone OFFERS YOU SIX STAGES OF SERVICE



STAGE 4 PERSONNEL INSTRUCTION

Executone representatives will train and—when necessary—re-train your client's personnel in the proper operation of the system. This planned program assures maximum benefits through full utilization and correct care of the equipment.

STAGE 5 MAINTENANCE ON THE PREMISES

To assure uninterrupted performance from any Executone system, prompt and reliable maintenance service, and complete stocks of factory replacement parts are always available locally. Each distributor is staffed with skilled technicians trained on a continuous basis at Executone's Factory Technical School . . . to provide your client with expert service on his own premises . . . for the life of the building.

STAGE 6 FULL YEAR FACTORY GUARANTEE

Every Executone system and component is guaranteed by the Executone factory for a full year.

STAGE 1 DESIGN STANDARDS

Executone's service-tested design standards—mechanical, electronic and acoustical—are your assurance of trouble-free system performance. Design ingenuity—resulting in simplification, miniaturization and increased capability—keeps the cost of an Executone installation competitive . . . reduces maintenance costs.

STAGE 2 CONSULTATION OR SURVEY

To help you plan an optimum system, your local Executone Systems Engineer will assist in a comprehensive study of your client's needs . . . recommend the equipment designed to meet them within his budget . . . suggest ways of implementing a system through modular purchases where funds are severely limited . . . provide you with full information on a professional level. You will find him thoroughly conversant with specialized practices in your client's field.

STAGE 3 INSTALLATION AND SUPERVISION

Your Executone distributor will assume full responsibility for the final and satisfactory operation of the system—whether installed by a contractor or by a factory-trained Executone crew. An Executone Field Engineer will co-ordinate and supervise all phases of the installation, and check it out thoroughly on completion.



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For further information refer to Sweet's 1960 Architectural File. For complete technical details and actual samples of Monopanel, contact your Butler Builder. He's listed in the Yellow Pages under "Buildings" or "Steel Buildings." Or write direct for a descriptive brochure and data sheets.

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The Record Reports

1960 A.I.A. Convention

continued from page 32

us that great things are never easy. They are as difficult as they are rare."

"Expanding Horizons"

The "professional program"—i.e., speeches and discussions aside from business—was this year arranged by a committee of the host (Northern California) chapter headed by John Lyon Reid.

Unquestioned high point was the address "Houses of Science" by Dr.

J. Robert Oppenheimer in which the noted physicist and director of the Institute for Advanced Studies at Princeton suggested that "a profession which spans the great arch from the techniques and sciences to the arts and the meanings and the hopes of man" may be especially sensitive to the increasing difficulty of communication among people increasingly isolated from each other by specialized traditions which multiply, in this scientific age, too often at the expense of the "common tradi-

tion" that should unite "the human community."

"It seems to me that the greatest hope I can express for your profession," Dr. Oppenheimer said, "is that you will find it possible to look with very wide angle lenses at the sites in which you are working. Ideally, perhaps, the city itself, the megalopolis or the province, and perhaps in reality, anyway at the very least in areas physically large enough to encompass what naturally meets the eye, what one sees in one vision. I think that this may promise the possibility of doing justice to the unique and intimate in the structures you design, that which makes them unlike any other, that which makes them works of art fit for their purpose at the same time that it bears a physical mark of the actual multiple relatedness of human institutions and of human lives, and that in recognizing this relatedness one will not lose but enhance the beauty of its inward, inner quality."

"Give Us a City!"

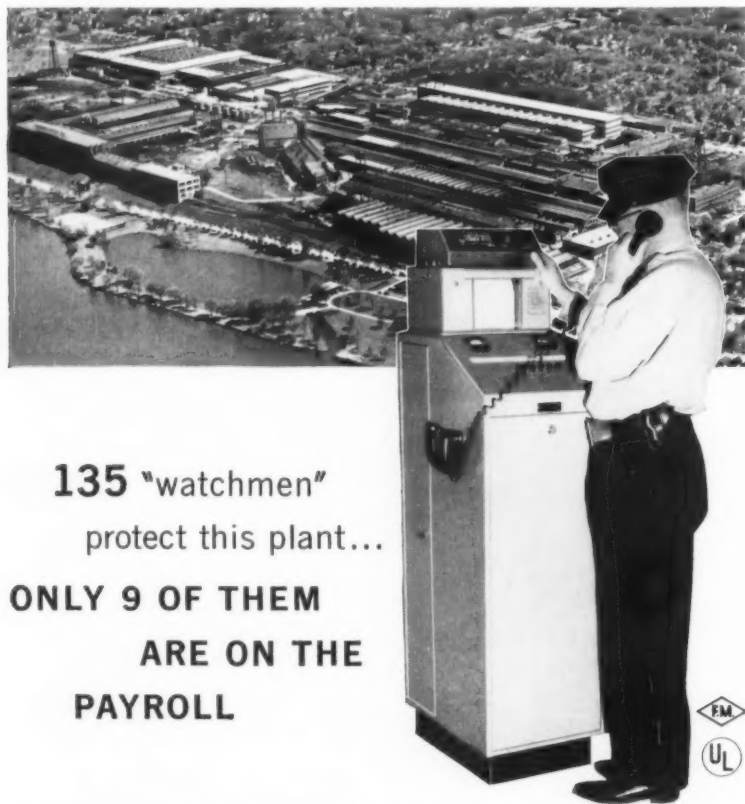
From Dr. C. Northcote Parkinson ("Political and Economic Horizons"), Raffles Professor of History at the University of Malaya and author of that insouciant best-seller "Parkinson's Law", came a plea for the revival of city life "as an effective background for intellectual discussion and constructive thought."

"If I dared speak for the intellectuals and artists of the world," said Dr. Parkinson, "I should say to you architects, 'Ours is an age in which the many rely more and more upon the abilities of the few. Give us a city in which we can live and work and argue and compete!'"

If this seemed like an undemocratic subservience to the needs and wishes of a few eggheads, Dr. Parkinson remarked with careful impertinence, in today's world the Einsteins and the Marilyn Monroes may matter more than all the bankers and car salesmen who yearn for suburbia.

In conclusion, Dr. Parkinson cheerfully raked his hearers over the coals by listing the architect's temptations—one, "to think himself a god"; two, "to use the word 'functional'"; three, "to read architectural journals" (so "all buildings look the same" and are designed not for the client but for publication).

continued on page 49



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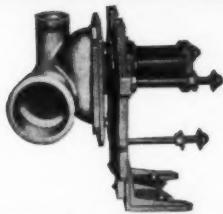
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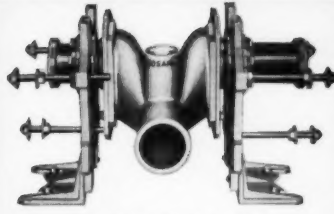
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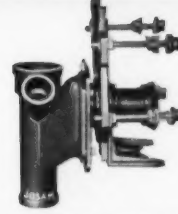
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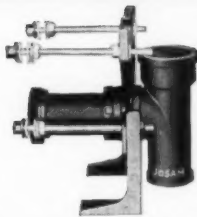
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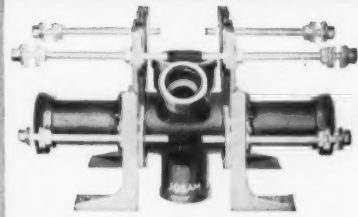
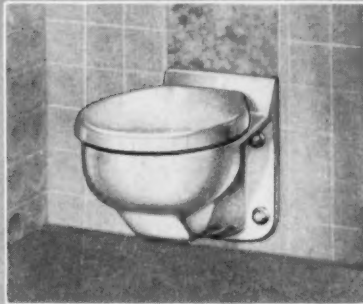
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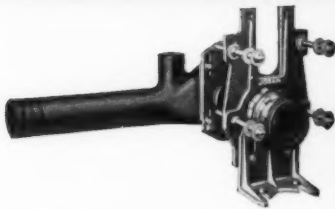
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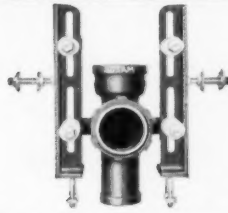
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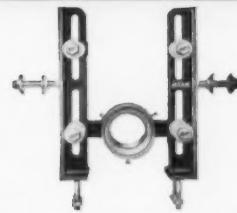
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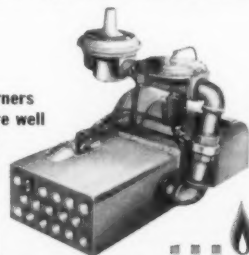
"With the style of architecture we want here in Birmingham, we find that it's more practical to have small gas-fired boilers in each school building rather than build a central plant and pipe heat to each building," says Mr. Fred J. Kelley, Business Manager of the City Board of Education.

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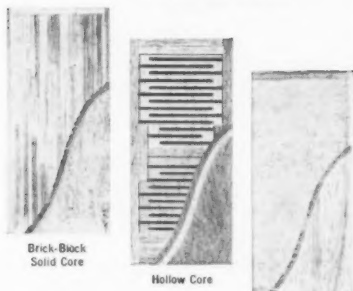
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Light openings, louvers and door moldings are provided according to architectural specification or in accordance with Haskelite manufacturing detail list. Constructed weathertight. Available in solid or hollow core doors.

(See also Sweet's Architectural File 16c/Has.)

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The Record Reports

1960 A.I.A. Convention

continued from page 44

Of Hostility and Power

Dr. Morton White, professor of philosophy at Harvard University, and Dr. Wendell Bell, professor of sociology and anthropology at the University of California at Los Angeles, discussing "Philosophical Horizons" and "Sociological Horizons" respectively, found somber phenomena to report. Dr. White thought a certain feeling of disorientation on the part of the contemporary city planner and urban reformer might be at least partly accounted for by the long history of "highbrow hostility to urban life" in American literature from Jefferson on (and not forgetting Sullivan and Wright). And Dr. Bell warned of the "problem of power" in American democracy and asserted that a study of those occupying positions of power in public affairs in this country does not reveal a "proportionate representation" of various social groups.

Architect participants on discussion panels following each of the major speakers were: Sociological Horizons—Harry Weese, Henry D. Whitney and William W. Wurster; Technological Horizons—O'Neil Ford, Burnham Kelly and George Fred Keck; Political and Economic Horizons—Walter Netsch Jr., Robert E. Alexander and Maynard Lyndon; Philosophical Horizons—Louis Kahn, Lawrence B. Anderson and John MacL. Johansen.

Products Exhibit Winners

Award-winning booths for the 1960 Products Exhibition were selected as follows: *for the effective manner in which it displayed its products*—1. The American Brass Company, 2. E. I. du Pont de Nemours & Co., 3. Kaiser Aluminum & Chemical Sales, Inc., 4. Crane Company; *for the outstanding attractiveness of its booth*—1. Libbey-Owens-Ford Glass Company, 2. Cold Spring Granite Company, 3. Portland Cement Association, 4. American Air Filter Company, Inc., Herman Nelson School Air System. Jurors were Architects Raymond S. Kastendieck (chairman), William Cranston and Martin L. Beck.

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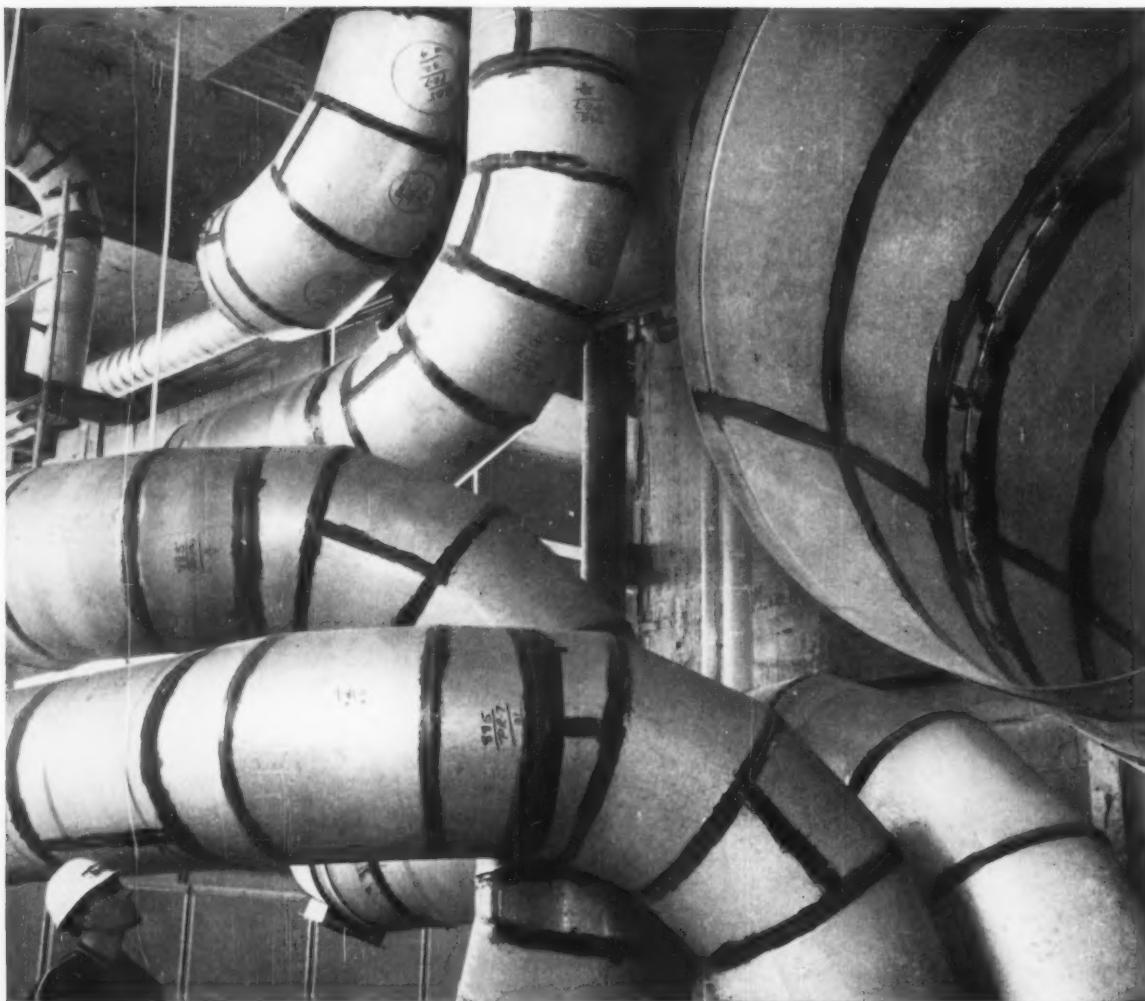
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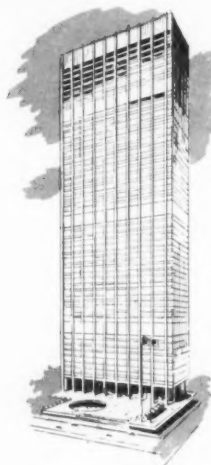
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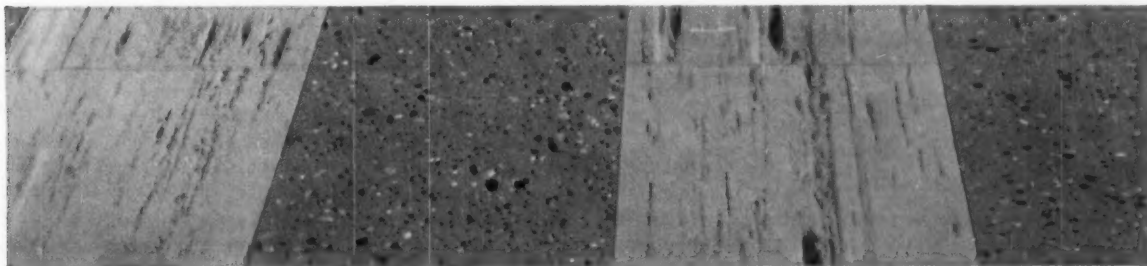
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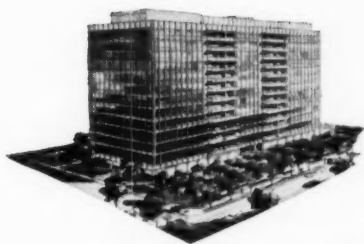
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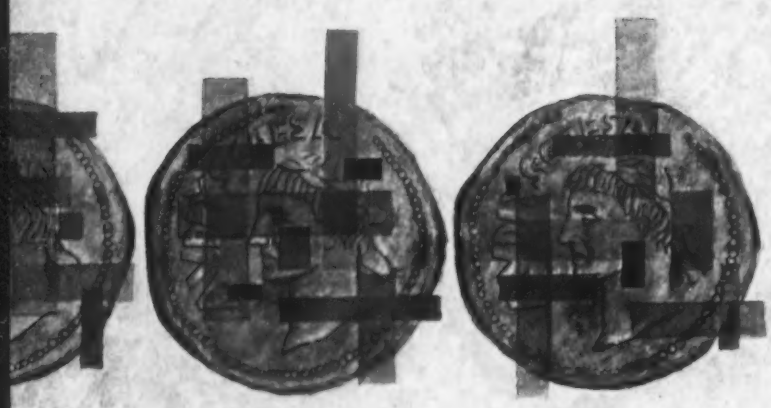
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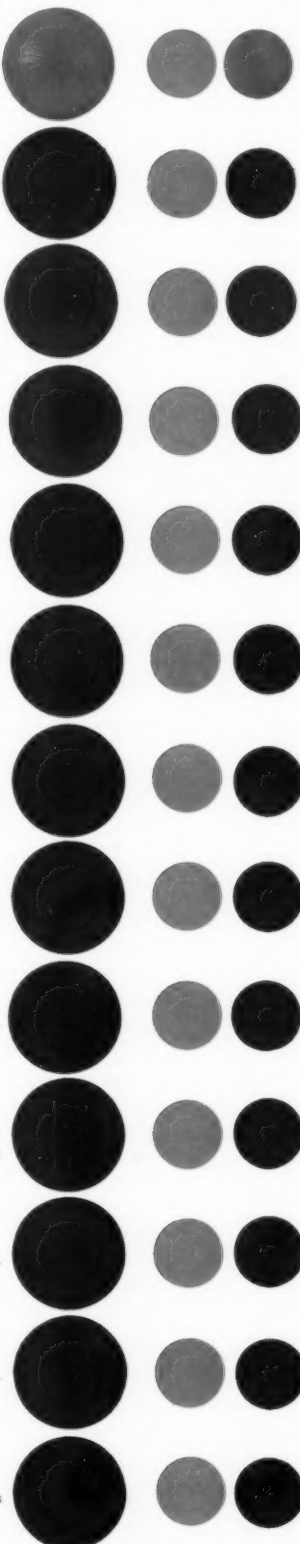
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After more than 3 years exposure under the highest concentration of natural light energy in the country, there was no perceptible fading of *Kalcolor* finishes. Results were the same in other outdoor exposure tests of like duration in severe marine and industrial environments. In the laboratory, continuous exposure to high-intensity ultra-violet light, for the equivalent of over 20 years of outdoor exposure, also failed to cause perceptible fading.

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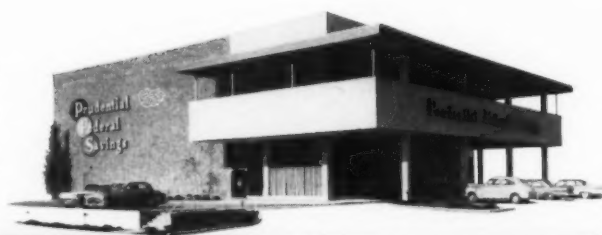
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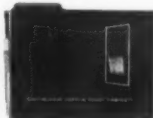
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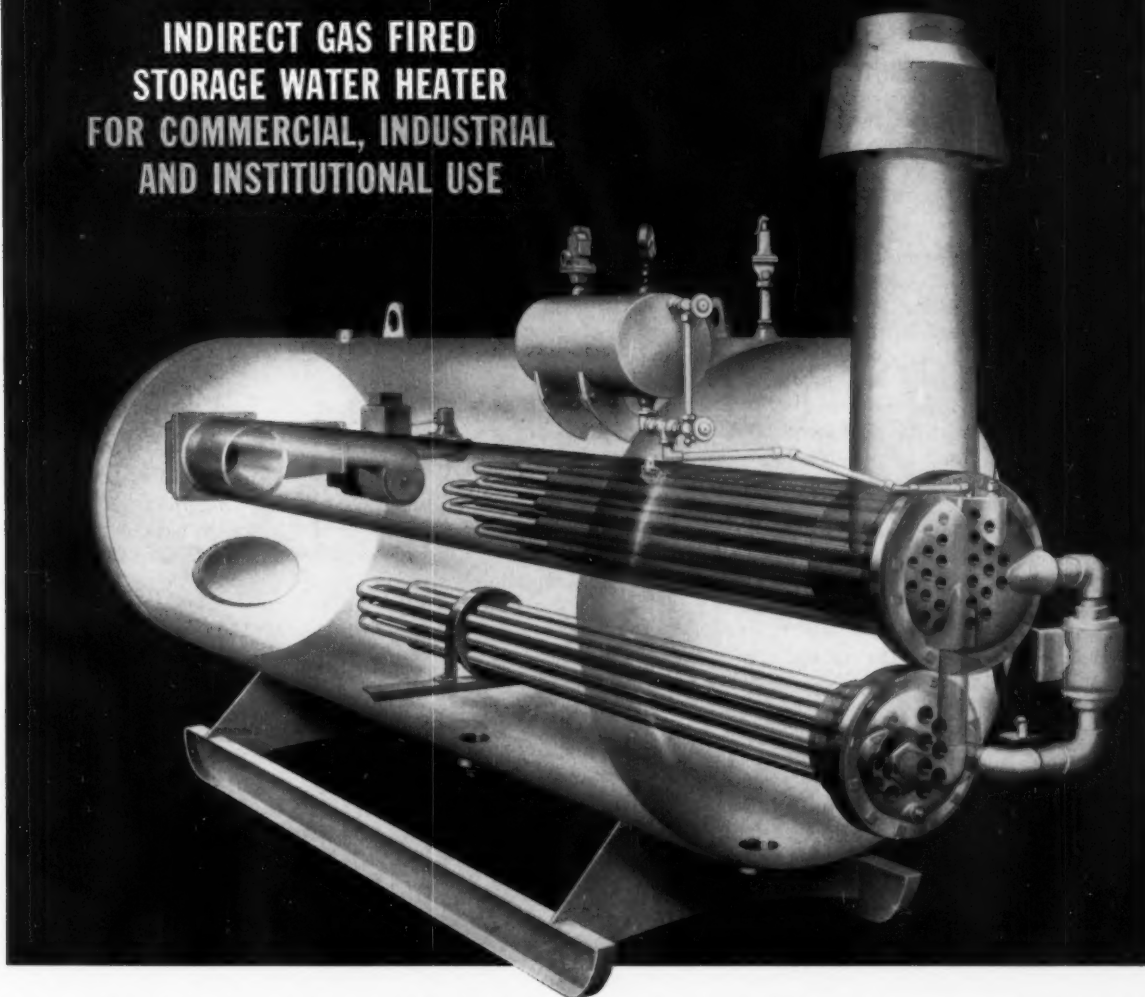
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\$25.5 Billion for Schools in the Decade Ahead?—U.S. Sets Some Goals

Broad Criteria as well as Construction Needs Discussed at Washington Conference of Educators Called by Office of Education

National goals which would involve expenditure of an estimated \$25.5 billion for school construction over the next ten years were outlined by U.S. education officials and discussed by representatives of more than 100 national organizations concerned with education at a meeting convened in Washington in April by the Department of Health, Education and Welfare.

The goals were set forth in a new report prepared by the Department's Office of Education "to clarify the dimensions of a national problem in such a way as to determine the need for action," according to the foreword written by Lawrence G. Derthick.

General "Standards" Defined

The report laid down certain broad criteria for these school plant facilities that are needed in the decade ahead. Every school, it said, should:

1. Safeguard students and teachers against physical hazards.
2. Provide ample protection for the health of the students and teachers.
3. Provide adequate space and facilities properly arranged for the current and anticipated curricular program.
4. Be sufficiently flexible to permit functional adaptation to an ever-changing educational program.
5. Be economical in original cost and operation, and contribute to the operation of an economical program of construction.
6. Have appealing esthetic values for students and teachers.
7. Be properly located and designed to permit expansion to predetermined optimum sizes to care for anticipated increases in enrollment.

How Many Schools?

The report also dealt with requirements for school construction and teacher supply. For the construction of elementary and secondary schools, the national goal was outlined as follows:

"To complete a construction program during the five school years after 1958-59 which will supply satisfactory school housing for every public school child by the fall of 1964; and a construction program during the second five years of the 10-year period through 1968-9 to maintain the status of a satisfactory classroom for every child."

Attainment of this goal, the report said, will require the construction of some 607,000 classrooms during the 10-year period, 416,300 of them during the first five years; or, estimating in terms of 1959 purchasing power, a capital outlay of \$25.5 billion.

How to Do It

Falling just short of proposing any specific program for achieving the needs outlined, the introduction and summary of the findings on goals stated: "Capital outlay expenditures for schools are traditionally financed by issuing long-term obligations. If these same methods are used to finance the schools needed in the decade ahead, the total revenue that must be raised to provide these schools and to serve the debt already existing may be estimated at \$26.8 billion over the decade. Of this \$26.8 billion, about one-half is needed for debt service on classrooms already constructed by 1958-9."

The goals and proposals for their achievement must be considered on

their own, the report asserted. If the ends are held absolutely necessary, it added, there can be no political or economic issue as to whether means should be provided.

Changes That Spur Need

After outlining the familiar historical background influencing the current backlog of school plant needs, the report cited a number of additional considerations it said were closely related.

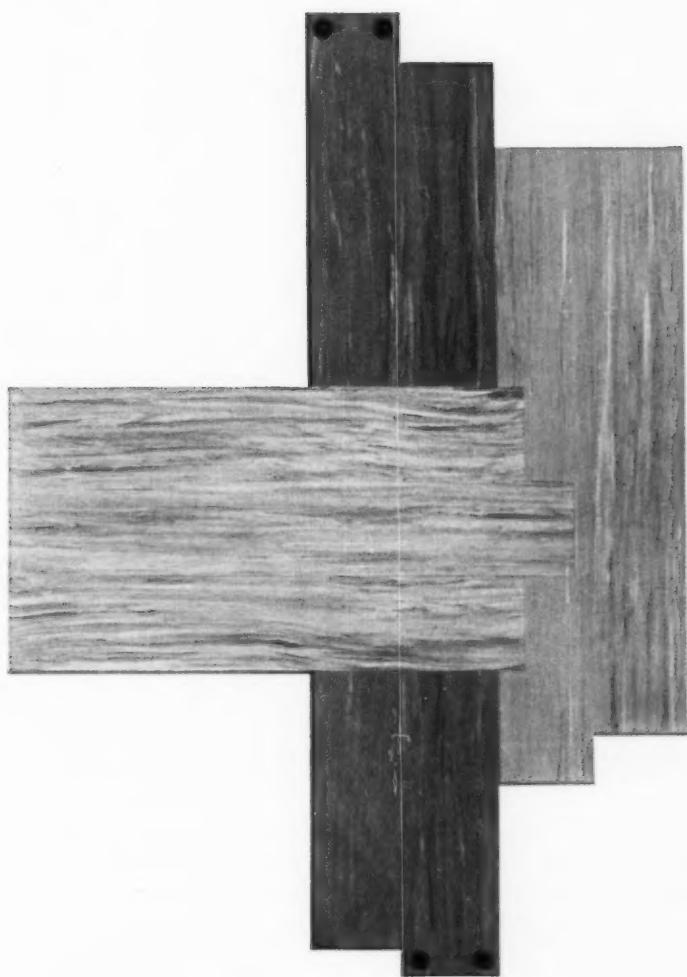
On top of the continuing enrollment increases, the reorganization of schools and school districts heightens the demands, particularly for high schools. These high schools, it was noted, should be large enough to permit a suitable curriculum offering and a proper class division at the highest grade offered.

Course offerings are continually expanding and are a heavy consideration in school plant needs. It is not unusual today, the report pointed out, to find libraries, handicraft shops, provisions for audio-visual education, and in some cases special art centers, even in the elementary schools.

Changes in methods of instruction were noted as additional influences. Instruction by teacher telling and pupil listening did not require much space; much more is required by the newer instructional methods which involve pupils working in cooperative groups combining participation and learning.

Other factors mentioned included school equipment requirements; increasing pupil mobility—movement from one district to another and from rural to city areas; school organizational patterns such as introduction of junior colleges, kinder-

continued on page 64



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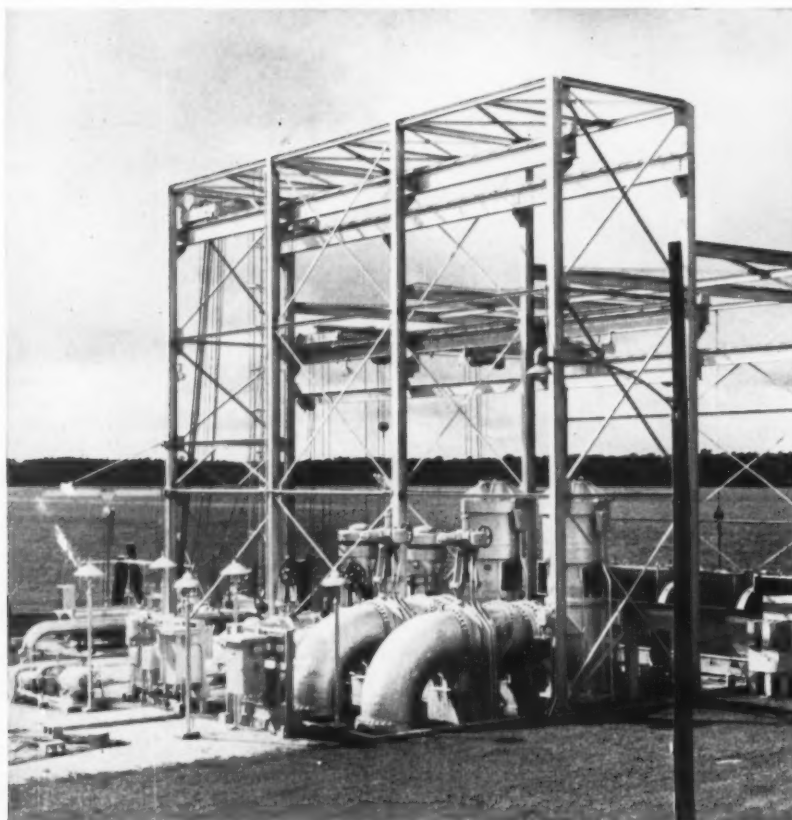
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Florida Power & Light Company uses anode racks made of Geon vinyl pipe manufactured by Colonial Plastics, Cleveland, Ohio, fabricated by Southeast Distributing Company, Miami. B.F. Goodrich Chemical Company supplies the rigid Geon vinyl. These photos show intake structure at Palatka plant on St. John River, one of many places anode racks of Geon are used.



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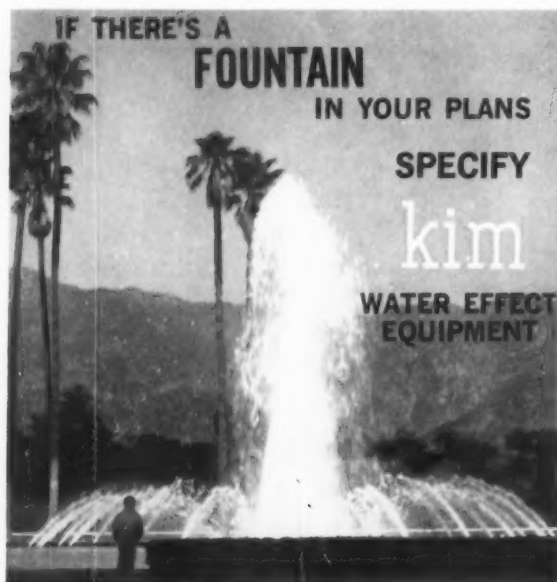
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Washington Report

continued from page 60

garten and nursery schools and evening classes for adult work.

Finally, other trends creating demands for school plant improvement and change were said to include the community use of buildings for various activities and the introduction of new educational media such as TV and radio; the new stress on mathematics and science programs requiring new laboratories and teaching areas.

Three Reasons for Building

The new statement of classroom needs embraced three components of need—existing backlog, increased enrollment and current replacement.

Combining all three categories, HEW placed the total need at 607,600 classrooms during the decade, assuming a continuation of the 1955-57 birth rates. The increase in the total number of classrooms in service over the decade will approximate 370,000, it said. This is composed of the 308,000 rooms to be built for increased enrollment, plus some 60,000 classrooms included in the backlog to relieve overcrowding. (The number of rooms needed for increased enrollment is computed by allowing one room for each en-

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rollment increase of 30 in grades K-8 and one secondary classroom for each enrollment increase of 25 in grades 9-12.) The other factor in the backlog, replacement of unsatisfactory facilities, and the allowance for current replacement do not add to the total stock of classrooms in service.

But classroom construction in the last two years has averaged but 70,600 a year. If this rate were to continue (which is considered doubtful now) and if construction were redistributed among the states as needed, then a rate of 70,600 a year for five years would produce 353,000 classrooms, leaving a backlog of 63,000 rooms in the fall of 1964, the report noted.

Financing of construction was mentioned in a discussion devoted mainly to method. Cost aspects are being studied and it is hoped there will be firm recommendations by fall.

In discussing the report at the Washington meeting, Secretary of Health, Education and Welfare Arthur S. Flemming noted that it had been prepared by the Office of Education for discussion purposes. He said the Department would not determine the next step in "seeking consensus in this area" until results of the initial meeting had been thoroughly evaluated.

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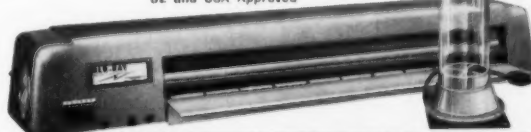
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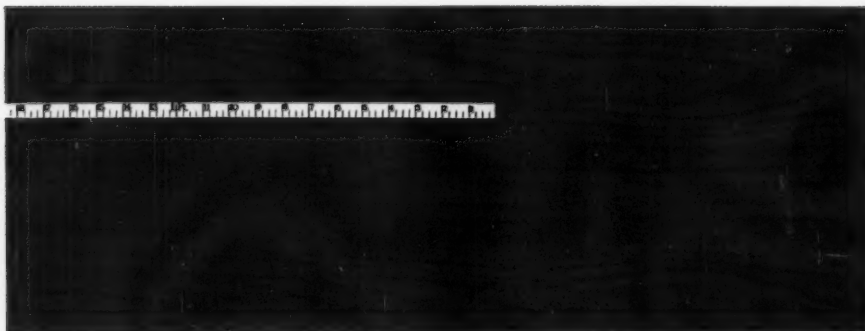
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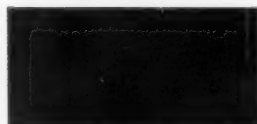
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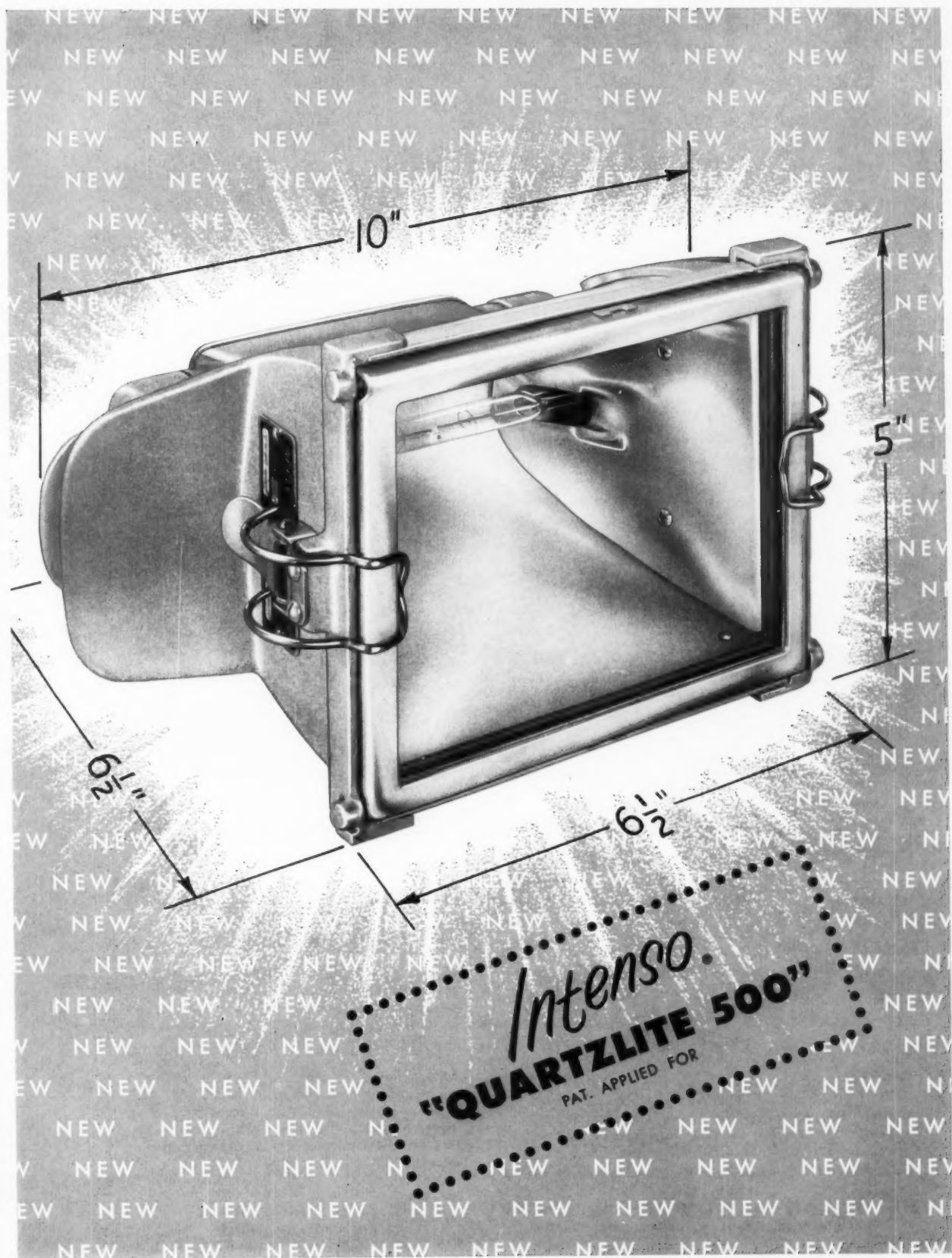
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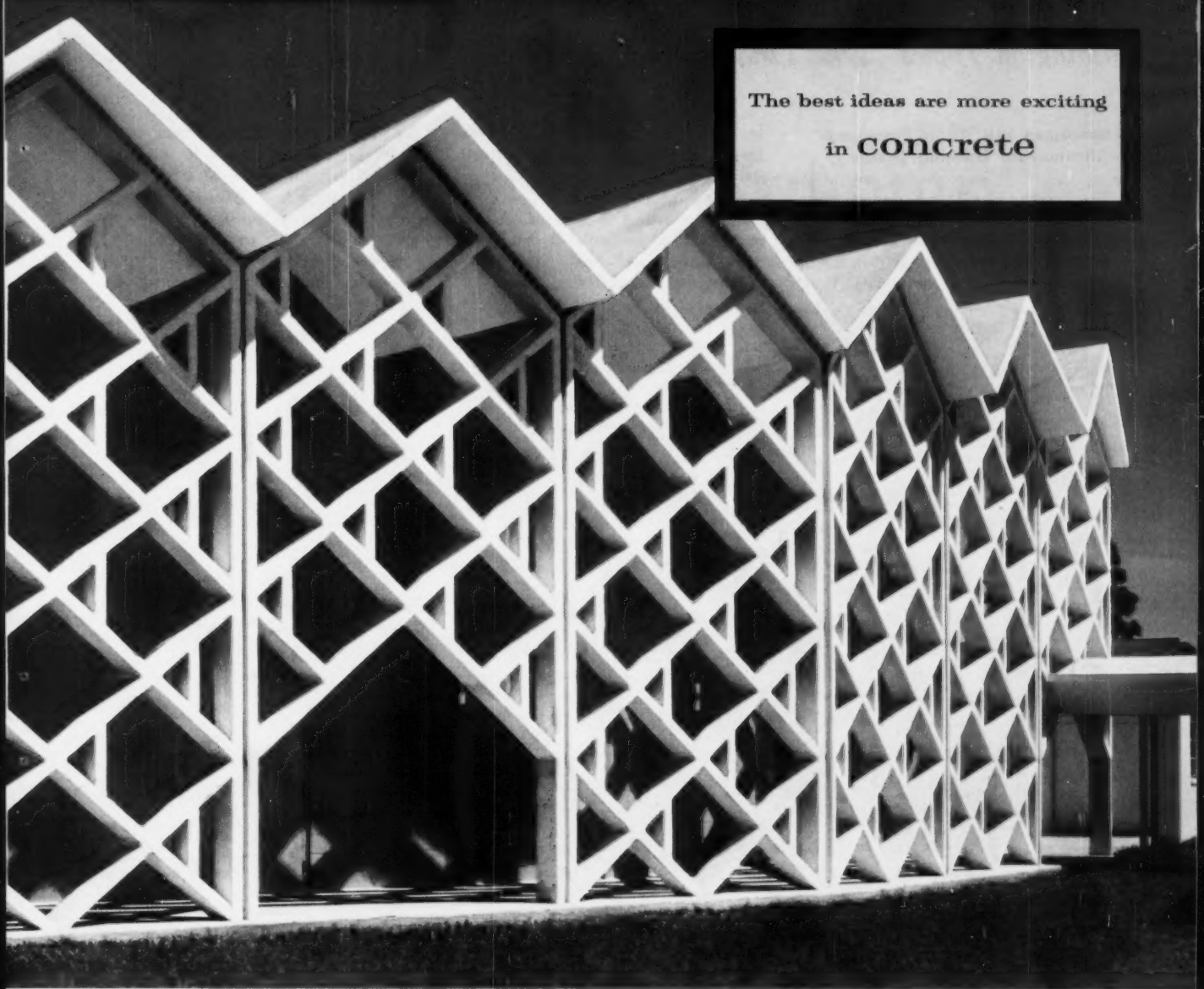
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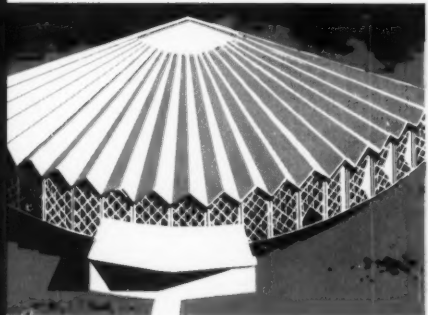
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Sparkman Bill Would Encourage Advances in Housing Design

The Federal Housing Administration is willing to undertake a limited program of insuring mortgages on housing incorporating new and untried materials and methods if Congress will give it authority to do so.

This was brought out last month in testimony before the Senate housing committee. As the law now reads, the agency cannot insure mortgages

involving construction based on materials, design or building methods that have not been tested and proved to be acceptable. This is because of statute wording that employs the phrases "economically sound," and "acceptable risk."

The explanation was given the subcommittee by FHA Commissioner Julian T. Zimmerman, who said that in addition, the plan would be inconsistent with the mutuality provisions of Section 203.

Commissioner Zimmerman was testifying on a provision in the new bill of Senator John J. Sparkman (D-Ala.), subcommittee chairman, which would compel the agency to give "careful and sympathetic consideration" to the insurance of mortgages on homes using advanced design and techniques—design and techniques that would reduce cost without sacrificing quality or livability.

FHA Pledges Support

The witness left no doubt that the agency is in accord with the Sparkman proposal, and would support a limited program along these lines. He suggested that such authority should limit the aggregate amount of insurance on such homes and provide that expenses of the program would not be charged to the Mutual Mortgage Insurance Fund.

There was agreement that no program exists now to permit technical advances, developed either by government or industry, to be tried on an experimental basis in full scale housing.

FHA Takes Lenient Policy on Nursing Home Program

The Federal Housing Administration has adopted a lenient policy in its administration of the new nursing home program.

The amendment covering this activity provided for the insurance of loans to proprietary nursing homes—privately owned homes operated for profit. Thus FHA cannot accept applications under this plan for mortgage insurance from non-profit groups or municipally-owned homes. They would get assistance through the Hill-Burton program administered by the U. S. Public Health Service of the Department of Health, Education, and Welfare.

FHA says Congress was very definite in indicating its desire that the two agencies—FHA and U. S. Public Health—should not overlap in administering the aid.

Local Initiative Encouraged

FHA has instructed its field offices that applications will be accepted
continued on page 324

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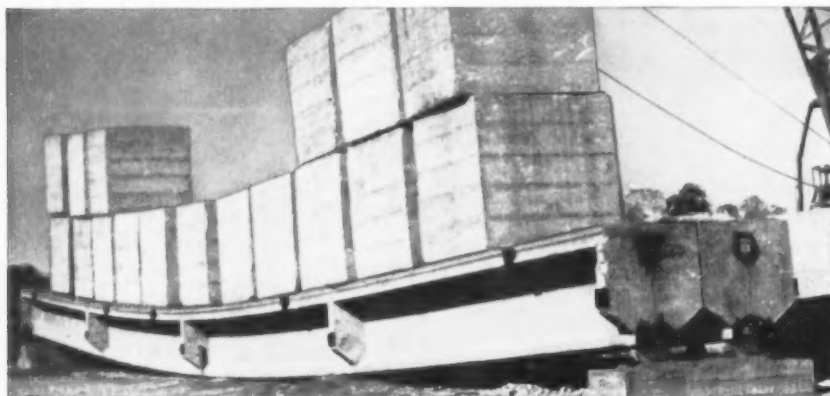
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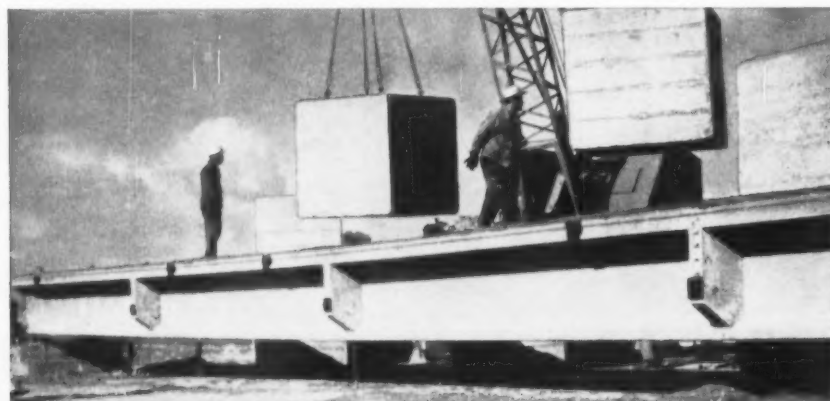
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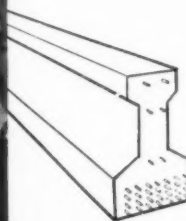
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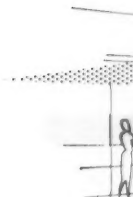
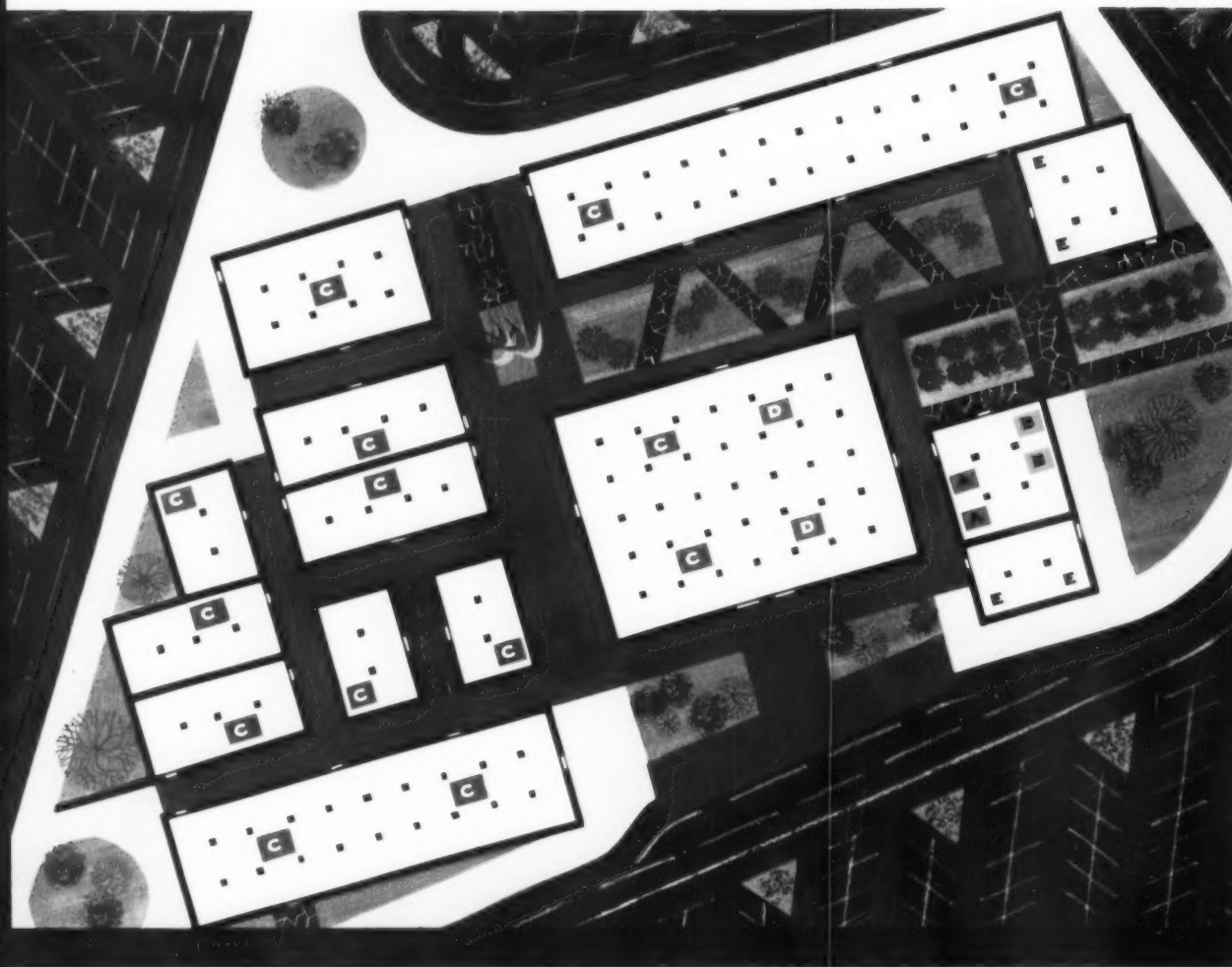
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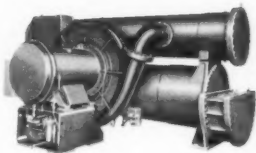
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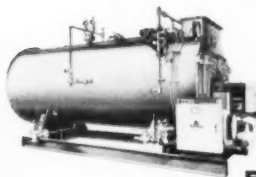
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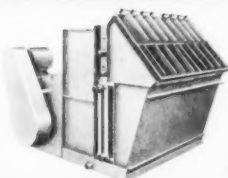




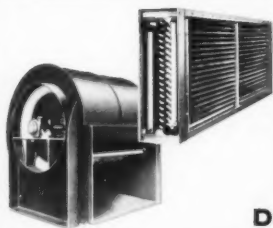
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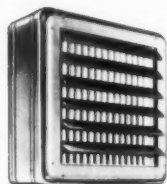
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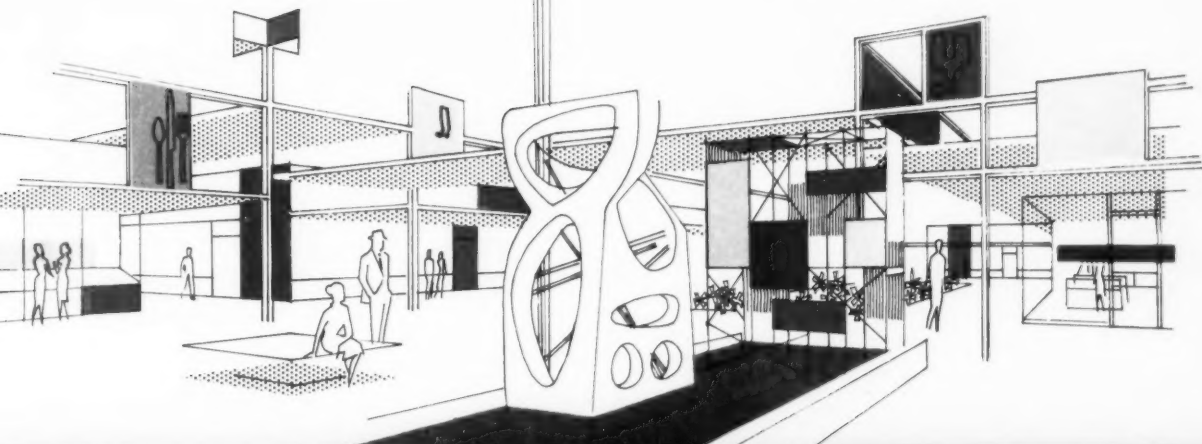
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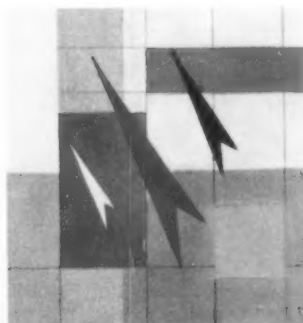
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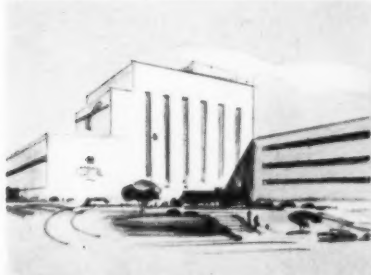
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Presented by Clyde Shute, Director of Statistical Policy, Construction News Div., F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assoc., Inc.

Labor and Materials: U.S. average 1926-1929=100

NEW YORK

ATLANTA

PERIOD	RESIDENTIAL		APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.		RESIDENTIAL	APTS., HOTELS, OFFICE BLDGS.		COMMERCIAL AND FACTORY BLDGS.	
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel		Brick	Frame	Brick and Concrete	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6	82.1	80.9	84.5	86.1	83.6
1935	93.8	91.3	104.7	108.5	105.5	72.3	67.9	84.0	87.1	85.1
1939	123.5	122.4	130.7	133.4	130.1	86.3	83.1	95.1	97.4	94.7
1948	250.1	251.6	239.4	242.2	235.6	199.2	202.5	178.8	178.8	178.8
1949	243.7	240.8	242.8	246.6	240.0	189.3	189.9	180.6	180.8	177.5
1950	256.2	254.5	249.5	251.5	248.0	194.3	196.2	185.4	183.7	185.0
1951	273.2	271.3	263.7	274.9	271.8	212.8	214.6	204.2	202.8	205.0
1952	278.2	274.8	271.9	265.2	262.2	218.8	221.0	212.8	210.1	214.3
1953	281.3	277.2	281.0	286.0	282.0	223.0	224.6	221.3	221.8	223.0
1954	285.0	278.2	293.0	300.6	295.4	219.6	219.1	233.5	225.2	225.4
1955	293.1	286.0	300.0	308.3	302.4	225.3	225.1	229.0	231.5	231.8
1956	310.8	302.2	320.1	328.6	324.5	237.2	235.7	241.7	244.4	246.4
1957	318.5	308.3	333.1	345.2	339.8	241.2	239.0	248.7	252.1	254.7
1958	328.0	315.1	348.6	365.4	357.3	243.9	239.8	255.7	261.9	262.0
1959	342.7	329.0	367.7	386.8	374.1	252.2	247.7	266.1	272.7	273.1
Jan. 1960	346.9	333.9	372.6	389.8	378.3	256.8	252.0	272.2	279.0	278.6
Feb. 1960	348.8	335.1	374.0	391.1	379.7	259.5	254.2	274.9	281.3	281.0
Mar. 1960	348.8	335.1	374.0	391.1	379.7	258.1	252.8	273.1	279.9	279.6
	% increase over 1939					% increase over 1939				
Mar. 1960	182.4	173.8	186.1	193.2	191.8	199.1	204.2	187.2	187.4	195.2

ST. LOUIS

SAN FRANCISCO

PERIOD	RESIDENTIAL	RESIDENTIAL	APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	COMMERCIAL AND FACTORY BLDGS.	RESIDENTIAL	APTS., HOTELS, OFFICE BLDGS.	COMMERCIAL AND FACTORY BLDGS.	COMMERCIAL AND FACTORY BLDGS.
	Brick	Frame	Brick and Concrete	Brick and Concrete	Brick and Steel	Brick	Frame	Brick and Concrete	Brick and Steel
1930	108.9	108.3	112.4	115.3	111.3	90.8	86.8	100.6	104.9
1935	95.1	90.1	104.1	108.3	105.4	89.5	84.5	96.4	103.7
1939	110.2	107.0	118.7	119.8	119.0	105.6	99.3	117.4	121.9
1948	227.9	231.2	207.7	210.0	208.1	218.9	216.6	208.3	214.7
1949	221.4	220.7	212.8	215.7	213.6	213.0	207.1	214.0	219.8
1950	232.8	230.7	221.9	225.3	222.8	227.0	223.1	222.4	224.5
1951	252.0	248.3	238.5	240.9	239.0	245.2	240.4	239.6	243.1
1952	259.1	253.2	249.7	255.0	249.6	250.2	245.0	245.6	248.7
1953	263.4	256.4	259.0	267.0	259.2	255.2	257.2	256.6	261.0
1954	266.6	260.2	263.7	273.3	266.2	257.4	249.2	264.1	272.5
1955	273.3	266.5	272.2	281.3	276.5	268.0	259.0	275.0	284.4
1956	288.7	280.3	287.9	299.2	293.3	279.0	270.0	288.9	298.6
1957	292.0	283.4	295.2	307.1	302.9	286.3	274.4	302.9	315.2
1958	297.0	278.9	304.9	318.4	313.8	289.8	274.9	311.5	326.7
1959	305.4	296.4	315.0	329.8	323.9	299.2	284.4	322.7	338.1
Jan. 1960	308.0	298.9	318.4	333.4	327.6	304.7	289.2	329.5	345.6
Feb. 1960	310.9	300.6	320.8	335.5	330.5	306.1	290.6	332.7	347.8
Mar. 1960	310.5	300.2	320.3	335.1	330.1	304.9	289.4	331.2	346.6
	% increase over 1939					% increase over 1939			
Mar. 1960	181.8	180.6	169.8	179.7	177.4	188.7	191.4	182.1	184.3

Cost comparisons, as percentage differences, for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95
(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926-29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.



New Architectural Uses for Aluminum Grating

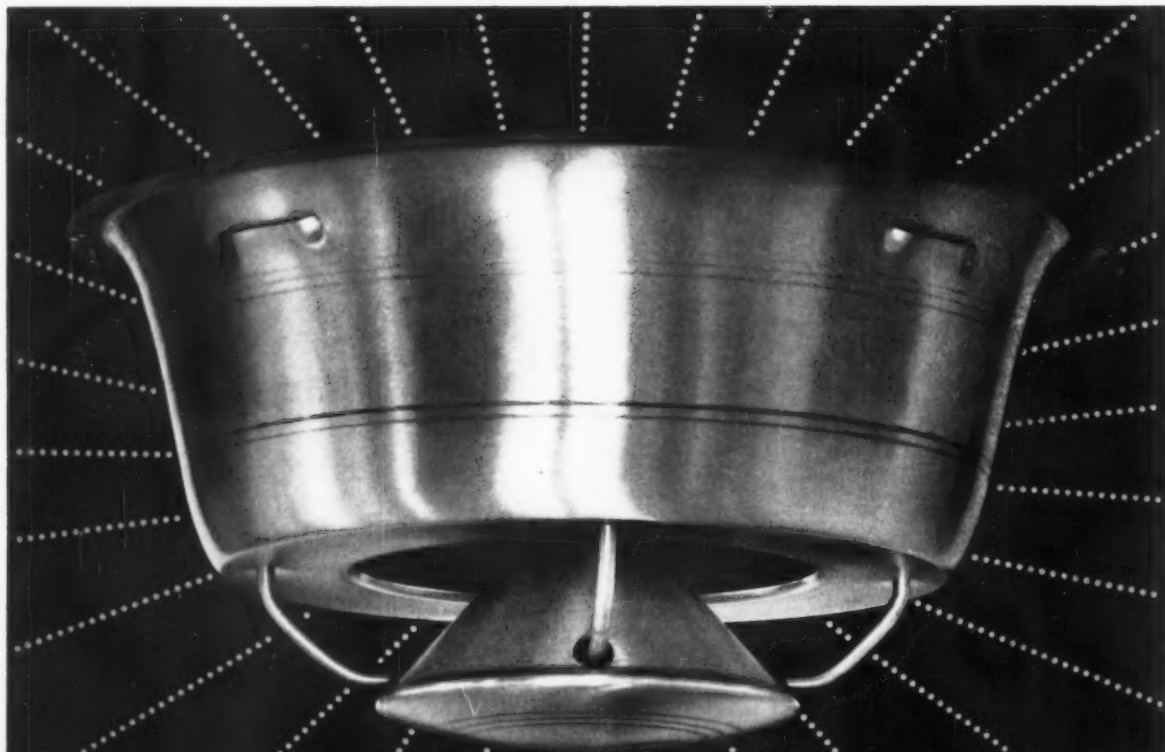
Here . . . new applications for aluminum grating . . . exacting installations where quality equal only to BORDEN'S will do:

- 1 This shows BORDEN aluminum grating used in a system of drain trenches throughout Mellon Square Park, Pittsburgh, Pennsylvania.
Architects: Mitchell and Ritchey, Pittsburgh, Pennsylvania
- 2 BORDEN pressure-locked type grating, of gold-anodized aluminum, forms the facade of this dramatic new structure. The Congregation Beth El Synagogue, South Orange, New Jersey.
Architects: Davis, Brady and Wisniewski, New York, New York
- 3 BORDEN pressure-locked aluminum grating fabricated as foot scrapers for use at a school in East Orange, New Jersey.
Architect: Emil A. Schmidlin, East Orange, New Jersey
- 4 BORDEN pressure-locked aluminum grating used for maintenance-free fencing at J. L. Hudson's Northland Shopping Center, Detroit, Michigan.
Architect: Victor Gruen & Associates, Detroit, Michigan
- 5 Sunshades of BORDEN pressure-locked aluminum grating permit passage of light and air while screening strong sunlight at the Lone Star Gas Company Office Building, Dallas, Texas.
Architect: George L. Dahl, Dallas, Texas

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 Architects: Anderson Beckwith and Haible; Builders: George A. Fuller Co. Photo: Shaw Studios / Boston.

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Required Reading

Best Foot Forward

EXHIBITION AND DISPLAY. By James Gardner and Caroline Heller. F. W. Dodge Corporation, 119 W. 40th St., New York 18. 190 pp., illus. \$13.75

BY MARJORIE B. NOYES

Fairs, festivals and exhibitions have enjoyed an unprecedented revival in the past decade. Large and small, they have descended on the earth from Boston to Baghdad—demonstrating everything from cows to atoms. Local folk have embarked on their production with as much enthusiasm, if not skill, as the most highly trained technicians and designers employed by the Federal government. Exhibitions and fairs have become as much a tool of national propaganda as have traveling statesmen.

Whatever the size, locale or subject of exhibits—whether world's fairs, museums or store displays—their most important ingredient is the people viewing them. The viewer's comprehension, pleasure and comfort are absolutely necessary for a successful showing. Therefore, while a designer of exhibits must, of course, think of esthetics and techniques, he must always think of them in relation to the movement, observation and intelligence of the people who will be the viewers.

In the beginning pages of *Exhibition and Display*, the authors sum up the problem quite neatly: "Obviously no formula for successful exhibition design is ever going to be found in the clichés of yesterday, today or tomorrow. Successful exhibition design is not, and never can be, a matter of applied formula, and a lot of misunderstanding would be avoided if it were not discussed in such terms. In practice, exhibition design is an empirical process with no one infallible answer to any problem. But it is also an essentially practical business, concerned with the relationship between things being shown, the people that are to look at them and the lighting, structure, arrangement, lettering and color that are to achieve

the desired effect in the simplest and most pleasant way."

And so, on this basis, authors Heller and Gardner have presented a book that thoroughly details every phase of exhibition design—beginning with a discussion on what exhibition can and cannot do and departing into the details of displaying goods, circulation and stand layout, lighting, special effects, planting, features, goods and services, ideas and information, museum exhibition and traveling exhibitions. They wind up this thoroughly interesting lesson with a critical look at the Brussels Fair and seven pages on procedure that any and all involved in the preparation of an exhibition will find an invaluable guide.

Each section and sub-section of the book is generously supplied with photographs of familiar recent fairs, exhibitions, store displays and museum exhibits as well as diagrammatical sketches. The illustrations are chosen not as a review of current style in display nor as a collection of the best work by the designers—but rather to illustrate the points taken. They are all accompanied by sharp critical judgment.

The sense of excitement that is inherent in the very subject of exhibition and display is conveyed throughout the book. The primary function of an exhibit is, after all, to excite the viewer about the display—be it an ancient painting, a new kind of cattle, the miracles of the atom or a new dress design. Today, there are enormous possibilities ahead in a field that is basically experimental to begin with. The possibilities lie not so much in the layouts, structure and display arrangements as in the technical application of sound, animation and controlled lighting. There is a wealth of exciting possibilities at hand—but too few designers with daring and imagination to break the static barriers set up by tradition.

In his introduction to *Exhibition and Display*, James Gardner speaks of the discursive and rambling treatment of the subject. To the contrary, this reviewer found the book very

well organized, superbly illustrated and, above all, interesting and highly informative.

It is evident from their achievements that the authors are well equipped to present such a volume. Miss Heller, a specialist in science and technology, was responsible for scientific fact finding and script writing for the British Pavilion at the Brussels Fair. Mr. Gardner is a leading designer noted primarily for his 1951 South Bank Exhibition in London, the first Edinburgh Festival and the British Pavilion at the Brussels Fair.

Exhibition and Display should be required reading for architects designing stores and museums and an absolute MUST for anyone involved in preparing exhibits.

The Modern Marketplace

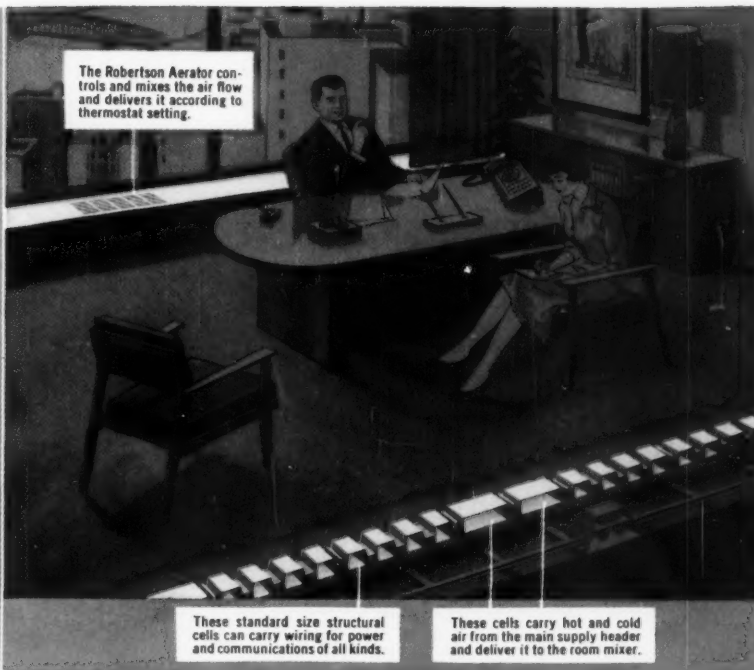
SHOPPING TOWNS USA: THE PLANNING OF SHOPPING CENTERS. By Victor Gruen and Larry Smith. Reinhold Publishing Corp., 430 Park Ave., New York 22. 288 pages, illus. \$13.50.

Beginning with a historical sketch on the evolution of the contemporary shopping center—both suburban and urban—and running through the entire process of shopping center planning, design and early operation, this is the most comprehensive treatment of the subject we have seen. It is written with an air of competence and authority; is generously illustrated with photographs, drawings, sketches, and charts; and has been put together in attractive format.

Following the historical prologue, there is a six-chapter section on prerequisites, which explains the role of the developer, discusses location, site selection, zoning problems, tenants, rentals, and financing. We suspect Mr. Smith had much to do with this section, which is informative and interesting, but which, unfortunately, fails to give us actual figures on actual projects.

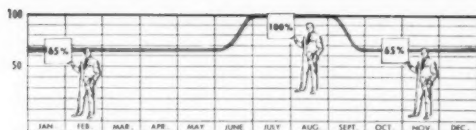
continued on page 88

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And
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Costs
With**



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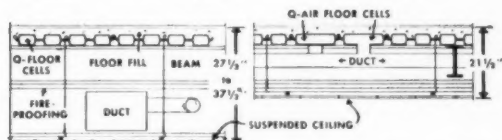
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Simplified cross sections of ceiling-to-floor-above areas show old way left and Q-Air Floor right. Average compaction is one foot.

Basically, Q-Air Floor is an outgrowth of Robertson Q-Floor, the quarter-century-old cellular steel subflooring system which provides quick, efficient construction and continuous wiring raceways in more than 15,000 buildings. Within its own thickness, and without disturbing the 2-foot module of standard Q-Floor, the new system provides pairs of wide structural cells for use in connection with dual-duct, high-velocity air conditioning. These load-bearing cells are adapted by the air conditioning contractor to transport air from horizontal supply ducts to mixing units for discharge into the room.

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Manchester, Conn.

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make possible a
quality job at
No Extra Cost..."

While grease test proves copper best . . . stoppage nil"

Continued Mr. Tatrow, "If you have any doubts as to the quality of the job you can turn out with DWV copper water tube for the same amount of money as rustable lines, you should have seen the Capehart Housing Project at Ft. Monmouth, N. J.

"We would have been able to show you how men, with practically no experience in working with copper tube on the job site, or prefabricating it in the shop, were able to turn out the best quality job possible at the same price as rustable material.

"The pictures shown here can tell you better than I the many time-saving advantages of working with DWV. And speaking of DWV I'd like to point out one thing: after ten years with copper, we have found stoppage of kitchen sinks, where copper drainage lines had been used, to be nil. Make the test shown at right; you'll soon see why.

"Another thing I'd like to add: a copper installation is made to last, and it does."

You, too, will find that it costs no more (often less) to install a 100% copper job, than it does to use rustable pipe.

Engineers, contractors, home builders and architects have also found that copper water tube is equally important for use in air conditioning lines, radiant panel heating, oil burner and processing lines. It's also important that you specify a particular brand . . . Revere—oldest name in copper.

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PICTURES TELL THE MONEY-SAVING STORY OF REVERE COPPER WATER TUBE & DWV

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4. ONE MAN and a pick-up truck can load and unload all the materials and prefabricated sections needed for a full day's work, in a matter of minutes.

5. 2 PLUMBERS and a helper, in one day, installed all the plumbing and drainage lines to complete 2 houses a day, each building having 4 apartments. Think of all the time involved if threaded pipe and fittings had been used.

6. WITH prefabricated sections, plumbing and DWV lines can be roughed in at the same time framing is put in place.

7. GREASE TEST PROVES COPPER DOES NOT CLOG as does rustable pipe. Both copper and ferrous pipe (2") were lined with 3 oz. of lard. Then, 140° F. water was run through both simultaneously using a "Y" fitting. The lard left the copper tube within 8 seconds due to high conductivity of copper, the low mass and its gun-barrel smoothness . . . with no trace of residue. It took 29 seconds for the lard to leave the ferrous pipe. Note residue. It doesn't take long for grease to pile up in amounts sufficient to cause clogging when drainage lines are ferrous pipe. Photos are unretouched. Arrow points to lard leaving copper tube.

• • • • •

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"STANDARD" FOR RELIABLE FASTENING TO STEEL OR CONCRETE

An employee of F. H. Sparks Co., Inc., world-famous curtain wall erection contractor, fastening a bracket to a structural beam on the First National City Bank Building, N.Y.C.



When cost, efficiency and holding power are important, only Ramset powder-actuated fastening belongs in your plans. Every Ramset fastener is austempered for extra strength, and guaranteed on any approved application. Wherever threaded studs or drive pins are used to fasten permanently to steel or concrete, Ramset does the job quicker, easier and at a lower in-place cost.

Ramset has proved its versatility and ability on all kinds of jobs around the world... permits greater design freedom, and is far more efficient. 15 times faster than other methods, Ramset is your best specification! Write direct for details, or call your dealer... he's listed under "Tools" in the Yellow Pages.

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RED TIP FASTENER WITH THE



Ramset® Fastening System



OLIN MATHIESON • WINCHESTER-WESTERN DIV. • 301-F WINCHESTER AVE. • NEW HAVEN 4, CONN.

Required Reading

continued from page 84

The Modern . . .

The next section is concerned with the planning and design process, and is notably complete. Its eleven chapters cover considerations of site, environment, traffic, merchandising, future additions, time schedules, the planning team, engineering, leasing and budgeting. The section ends with a group of case studies from various sources.

The final chapters deal with the completed center—its opening, promotion, publicity, uses of public areas—and present some ideas and schemes for the future. There is a useful bibliography at the end of the book.

Altogether, this appears to be the definitive book on the subject to date, and will probably become a must for all those persons seriously interested in the retailing environment.

—JAMES S. HORNBECK

New Listing of Materials

1960 BUILDING PRODUCTS REGISTER
A.I.A. *The American Institute of Architects*, 1735 New York Ave.,
Washington 6, D. C. By subscription:
\$25 annually.

This is the first issue of a planned yearly series of building product listings intended to give equivalent comparative data as an aid to pre-selection of materials. This year's *Register* has "over 1300" product references in its 378 pages.

The *Register* consists of two major parts: the product listing sections occupy a total of 238 pages; each section is followed by several pages of abstracts of industry and government standards and specifications, short summaries and listings of reference material. In the front of the book is a three-page directory of technical organizations which develop standards and specifications. The book is divided into 17 sections organized in part according to the basic product category index of Sweet's Architectural Catalog File, which contains 35 product classifications. Mechanical equipment is not included in the *Register*.

Format of the 8½-in.-high by 10¾-in.-wide by 1-in.-thick book
continued on page 368

Low Cost Insurance Program Protects Original Drawings From Loss or Damage

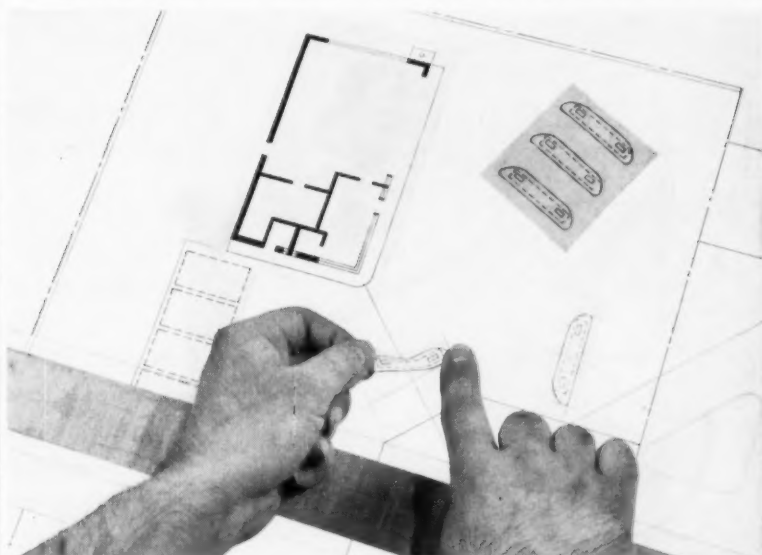
Have you ever thought what would happen if your company's original drawings were lost or damaged? How much trouble and expense would be involved to replace them? Many companies are adopting a simple "insurance" program to meet just such a problem . . . a program which requires neither expensive new equipment or radical adjustments of established procedures. The program consists of two parts. First, recognizing the cost of *any* drafting medium is always an infinitesimal part of the investment in a finished drawing, the companies standardize on the drafting medium which affords their original drawings maximum life. Second, they institute the policy that original drawings must be used only as *masters*, that all printmaking must be done from *duplicate originals* of the masters.

The perfect answers to both these needs are Dietzgen polyester *drafting* film for all original drawings, and Dietzgen *diazosensitized* polyester film for duplicate originals! Dietzgen's polyester film is so tough it cannot be torn. Its crystal-clear transparency is permanent . . . never fogs or yellows. It's dimensionally stable; insensitive to temperature, humidity, acids or alkalines. The drawing surface of Dietzgen's polyester drafting film is unexcelled . . . accepts pencil or ink perfectly; erasures are smudge-proof and ghost-free. Inexpensive duplicate originals are quickly produced in *any desired quantity* by contact printing the original drawing on Dietzgen's diazo-sensitized polyester film. The images developed are *exact* duplicates of the original . . . uniform and permanent to provide the finest reproducibles attainable.

Drafting-Printmaking Booklet reports new techniques for solving engineering and production problems

This new 36 page booklet describes a wide variety of engineering and production problems that have been solved with advance techniques in drafting and printmaking pioneered by Dietzgen. The concise, problem-solution approach suggests ways in which you may improve the effi-

NEW PRINTED-ELEMENT DRAFTING TECHNIQUE CUTS DESIGN COSTS 66%



Printed-element drafting ends tedious redrawing of repeated elements . . . produces accurate reproducibles in record time.

The regional engineering office for a large oil company employed 15 draftsmen to prepare construction plans for new filling stations. Investigation of their drafting procedures revealed the majority of "board-time" was consumed redrawing, in varied combinations, the basic elements such as pump islands, hoists, and rest rooms, used in each station. Redrawing of the repeated station elements was tedious work and wasted valuable man-hours. Dietzgen solved this problem by recommending a new *printed-element* drafting technique utilizing Dietzgen's diazo-sensitized, adhesive-backed polyester

drafting film. Duplicate originals of all repeated station elements are now printed on the Dietzgen film medium. The draftsman simply selects the proper elements for each station, mounts them on a sheet of Dietzgen polyester drafting film, and the plan is 75% complete without drawing a line! The finished drawing is a high-transparency reproducible, ready to produce any number of prints.

Today, five draftsmen handle the entire work load. The cost of station design has not only been slashed 66%, but the other ten draftsmen have brought the department's backlog down to a desirable level. Service to other departments has been greatly improved too; and rush jobs are handled on a basis never before possible.

Printed circuits and plant layouts are other design activities where Dietzgen's *printed-element* drafting has been used with amazing cost-cutting, time-saving success.



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DISCOVER THE DIFFERENCES IN DISPOSERS



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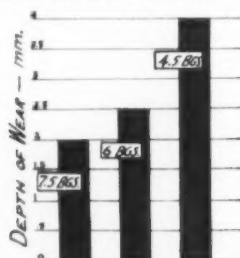
the originator and perfecter of Garbage Disposers • In-Sink-Erator Manufacturing Co., Racine, Wisconsin

7 Factors Affecting Life of Concrete Floors

Long-wearing concrete floors are easy to build if a few practical steps are observed in designing, placing and curing them. Naturally, the most important part of the floor is its wearing surface. The hardness or "wearability" of the surface is of special importance for such jobs as industrial floors, warehouses, loading platforms, etc.

Through years of on-the-job study and extensive research work, Alpha has found that the following 7 factors must be considered if floors are expected to endure heavy wear. *Please note that these factors are not short cuts and also you can't omit the importance of quality materials, good supervision and good workmanship.*

1. The Cement Factor



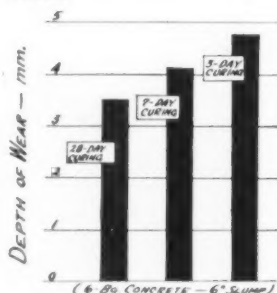
EFFECT OF CEMENT FACTOR
ON DEPTH OF WEAR
(2" slump and 28-day curing)

A 7.5-bag mix will wear 20% better than a 6-bag mix and 100% better than a 4.5-bag mix at the same slump and with the same 28 days moist curing.

2. Slump of Concrete

By reducing the slump from 6" to 2", the wearability of floors made of 4.5-bag concrete will be increased by 15%.

3. Length of Moist Curing Time



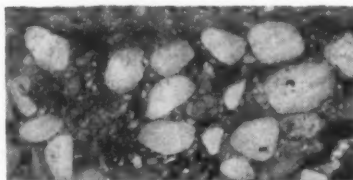
EFFECT OF MOIST CURING TIME
ON DEPTH OF WEAR
(6-bag concrete, 6" slump)

The higher the slump the more the concrete is affected by improper curing. The chart above shows how moist curing improves the wearability of 6" slump concrete.

4. Compressive Strength

For all practical purposes, the wearability of concrete is directly proportional to its strength. Example: 6000 psi concrete wears over four times better than 1800 psi concrete.

5. Finishing Concrete



Overtroweling will cause the finest particles and water to rise to the top, thus resulting in a low strength surface skin. The importance of troweling at the right time can be seen in the fact that the

surface skin of 0" to 4" slump concrete can show the same amount of wear. Water and fines brought to the surface through careless troweling of lower slump concrete reduces the surface strength until it is no better than higher (up to 4") slump concrete. The surface hardness of 4" slump concrete is 100% better than 10" slump concrete.

6. The Type of Cement

In cases where concrete is subjected to wear at an early age, provision must be made for high-early concrete strength. This can be done by using hi-early cement or a higher cement factor where Type I cement is used. Such conditions vary too much for specific recommendations here, but Alpha's field engineers are always available to users of Alpha products to assist in determining the proper construction method for special conditions.

7. Drying After Curing

If concrete is permitted to dry after proper curing, its surface skin strength is almost doubled. It is advisable, therefore, to allow at least one day of drying after moist curing before the floor is subjected to heavy wear.

Good sound aggregates are important, but it is the mortar binding the aggregates together that determines, for the most part, the wearability of the floor. There is no short cut to quality concrete and as has been proved time and again, the right way is the most economical in the long run.

Note: All data on this page are approximate and intended for general guidance and not specific rules in concrete floor design and construction.

Reprints of the helpful information presented on this page are available on request.

ALPHA

PORTLAND CEMENT COMPANY
Alpha Building, Easton, Pa.



Even the planter in
this modern office building
is made of **STEEL**



STRUCTURAL STEEL FRAME is exposed outside the steel side wall on the front of the building to show a different approach to wall treatment. The steel side walls are outside the frame on the rest of the building.

When Flint Steel Corporation in Tulsa commissioned architect Donald McCormick to design a new office building, they asked for a "tour de force" in their favorite construction material. (They are both a steel fabricator and a steel service center.) As the planter indicates (it's a 4-ft diam flanged-and-dished head!), they got their all-steel building. To see how Mr. McCormick made other imaginative uses of structural and ornamental steel, just turn the page.

**BETHLEHEM
STEEL**



Wherever you look
you see **STEEL**

*functional
and aesthetic*



LOOK AT THE ENTRANCE. Windows are fabricated from steel tubing and steel bars. And that door is framed with steel.



LOOK AT THE WINDOW SCREENS. Steel tubing and steel bars were also used to fabricate these screens. Note the steel sun louvers.



LOOK AT THE LOBBY. Both walls and ceilings are steel—sandwich-type wall panels, with fiberglass cores. Panels are perforated on one side only, and erected with perforated and plain sides alternating. Result: good acoustics. Yes, that light fixture is a perforated steel angle.



LOOK AT THE SWITCHBOARD AREA. The wall pattern? Square steel bars. The light fixtures? Perforated flanged-and-dished steel heads.



LOOK AT THE BUILDING FROM THE WEST. All 20,000 sq ft of this structure are enclosed with side-wall panels fabricated from steel sheets. Here, expanded-steel screens, fabricated by Flint, decorate the exterior. And how are the steel screens attached to the steel side walls? With steel tees, of course. Fascia at roof line? You guessed it—steel angles.



LOOK AT THE HALLS. Steel tubing and steel bars frame all interior doors and steel partitions. Note the expanded-steel screen over coat closet

**OFFICE BUILDING, FLINT STEEL CORPORATION
TULSA, OKLAHOMA**

*Architect, Donald McCormick, F.A.I.A.
General Contractor, Tulsa Rig, Reel & Manufacturing Co.
Steel Fabricator, Flint Steel Corp.*

Much of the steel used in this building was supplied by Bethlehem.

**BETHLEHEM
STEEL**

OFFICES ?

Yes, they're "all steel," too.



STEEL PARTITIONS in the sales area are easily moved. Even the raceways for electrical wiring in this building are steel—hollow steel tubing and steel door jambs.



EXPOSED STEEL BEAMS are in the spotlight in the drafting room.



SUSPENDED EXPANDED-STEEL SCREENS in the ceiling are featured in sales executives' offices.

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Robert Hall Clothing Store No. 330, Maple Shade, N. J., typical of the twelve stores cooled by Chrysler Air Conditioning

Chrysler Packaged Air Conditioning to cool 12 more stores for Robert Hall

Robert Hall Clothing Stores are springing up around the country like daisies after a summer storm. And in each of the last twelve stores you'll find Chrysler Packaged Air Conditioners to keep customers cool.

All of these stores use versatile, low-cost Chrysler 20-ton air-cooled units. But where local conditions warrant, Chrysler also can supply water-cooled equipment in the most complete range of capacities.

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Robert Hall, like so many other large chain store operators, has learned Chrysler delivers the best all-around value for their air conditioning investment. There are many reasons why. For details or technical cooperation of a Chrysler Air Conditioning Engineer, write today.



Airtemp Division, Chrysler Corporation, Dept. M-60, Dayton 1, Ohio
In Canada: Therm-O-Rite Products, Ltd., Toronto, Ontario



Photo shows NEO-RAY NO. C667 SERIES round Plexiglas 4' fixture no selling floor of Gayfers

SOUTH'S NEWEST DEPARTMENT STORE CHOOSES...

NEO-RAY ROUND RECESSED
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In this modern shopping center at the Gateway to the new south, you'll find a ceiling of stars supplying correct lighting in Gayfers Department Store. These NEO-RAY Recessed Round Fixtures with Square Housings feature NEO-RAY's new frame-within-a-frame construction...Concavely formed Matte finish Plexiglas diffuser solidly set into interior hinged frame which mounts by means of NEO-RAY's patented Twist-Lock...no screws or protusions visible on face frames.

Perhaps these new NEO-RAY fixtures fit into your plans. Let us send you complete information.



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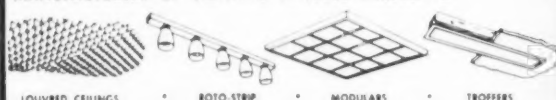
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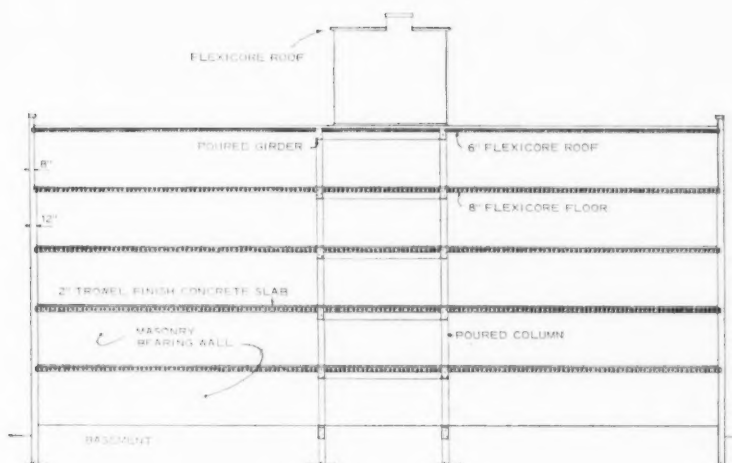
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- ... New Product Bulletin N-58 (Mini-Cell)
- ... Sweet's Architectural File for 1960
- ... Louvred Ceiling Catalog No. 544

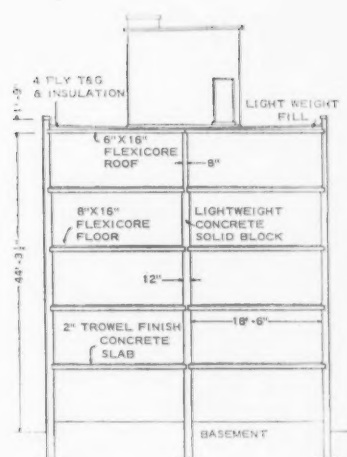
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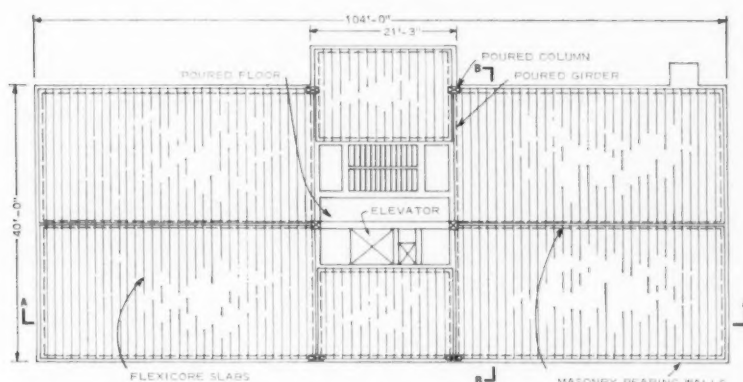
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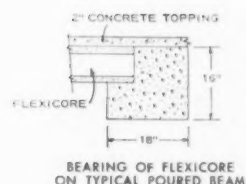
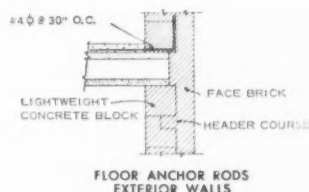
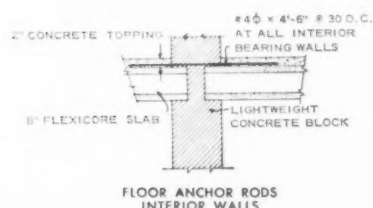
SECTION AA. Precast cellular concrete Flexicore decks provide fireproof structural floors and roofs at Fairmay Apartments, Chicago. The five buildings are masonry wall-bearing except for reinforced concrete stairway and elevator core. Design called for 75 psf live load.



SECTION BB. Clear span of 18'-6" between masonry bearing walls permits simplified design and fast construction. Underside of Flexicore deck is exposed for finished ceiling.



TYPICAL FLOOR FRAMING. Each 3800-sq. ft. Flexicore deck was placed, leveled and grouted in two days. Available on third day as work deck for erection of walls and frame for next story.



Edward Marks, Architect, Evanston, Illinois



The use of Flexicore precast decks permitted Fairmay Apartments to meet Chicago's strict fire code, and resulted in substantial savings to the owners. High-speed erection permitted earlier occupancy and exposed Flexicore slabs eliminated ceiling plaster.

For more information on this project, ask for Flexicore Facts No. 78. Write The Flexicore Co., Inc., Dayton, Ohio, the Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio or look under "Flexicore" in the white pages of your telephone book.





National Bank of Detroit
Albert Kahn Associated Architects & Engineers, Inc.
Bryant & Detwiler, Gen'l Contractor

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... new concept in elevating inspired by Elevonics*

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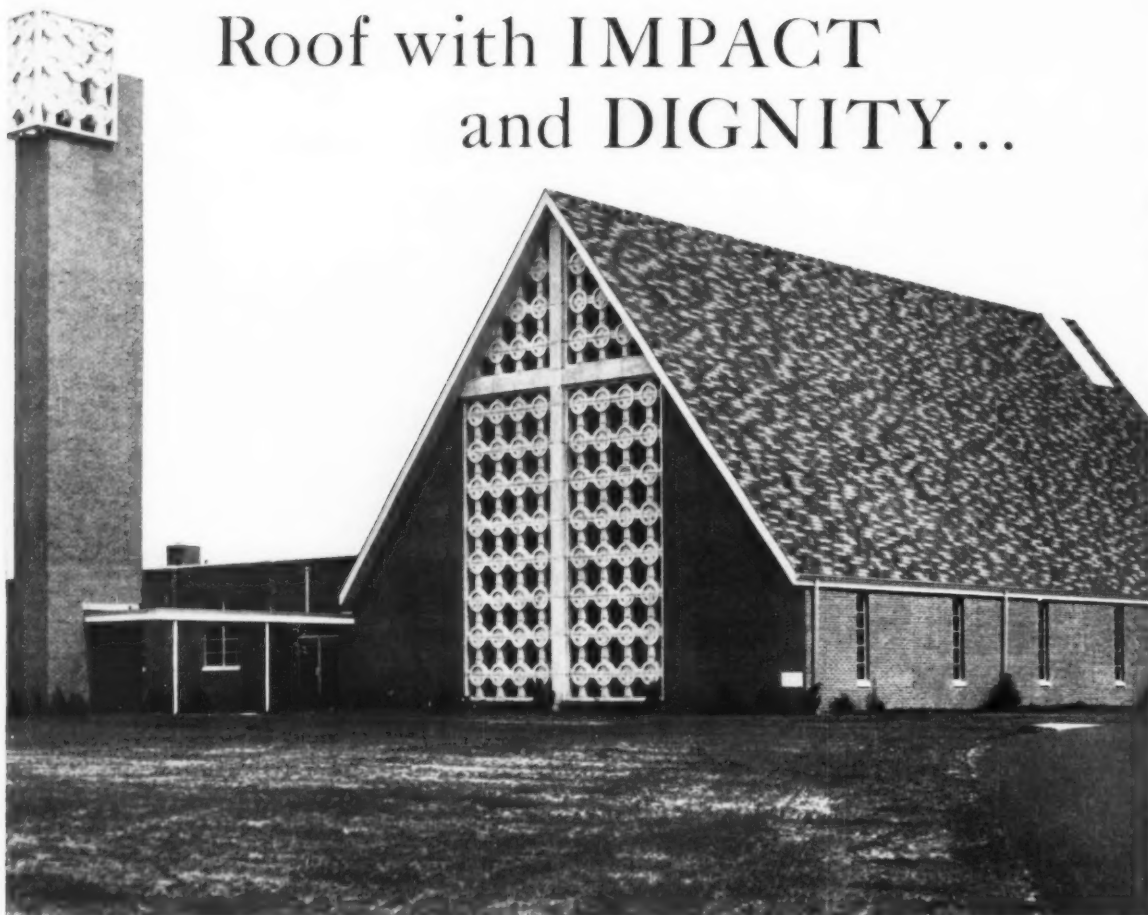
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in a dominating sweep of slate-like beauty**

When the roof is a dominant architectural feature, these unique qualities in the Bird Architect Shingle become even more significant:

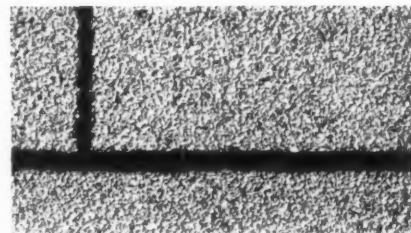
CONFORMITY WITH DESIGN achieved by the Architect's 18" King-tabs — 50% less vertical lines accent the beautiful horizontal sweep.

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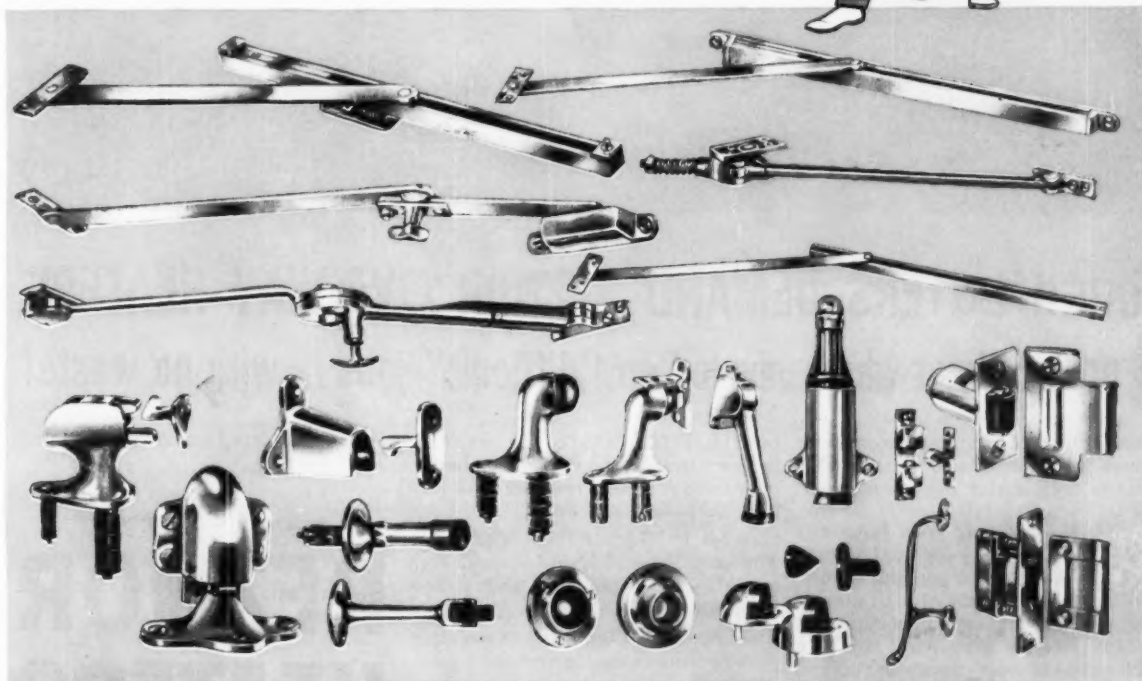
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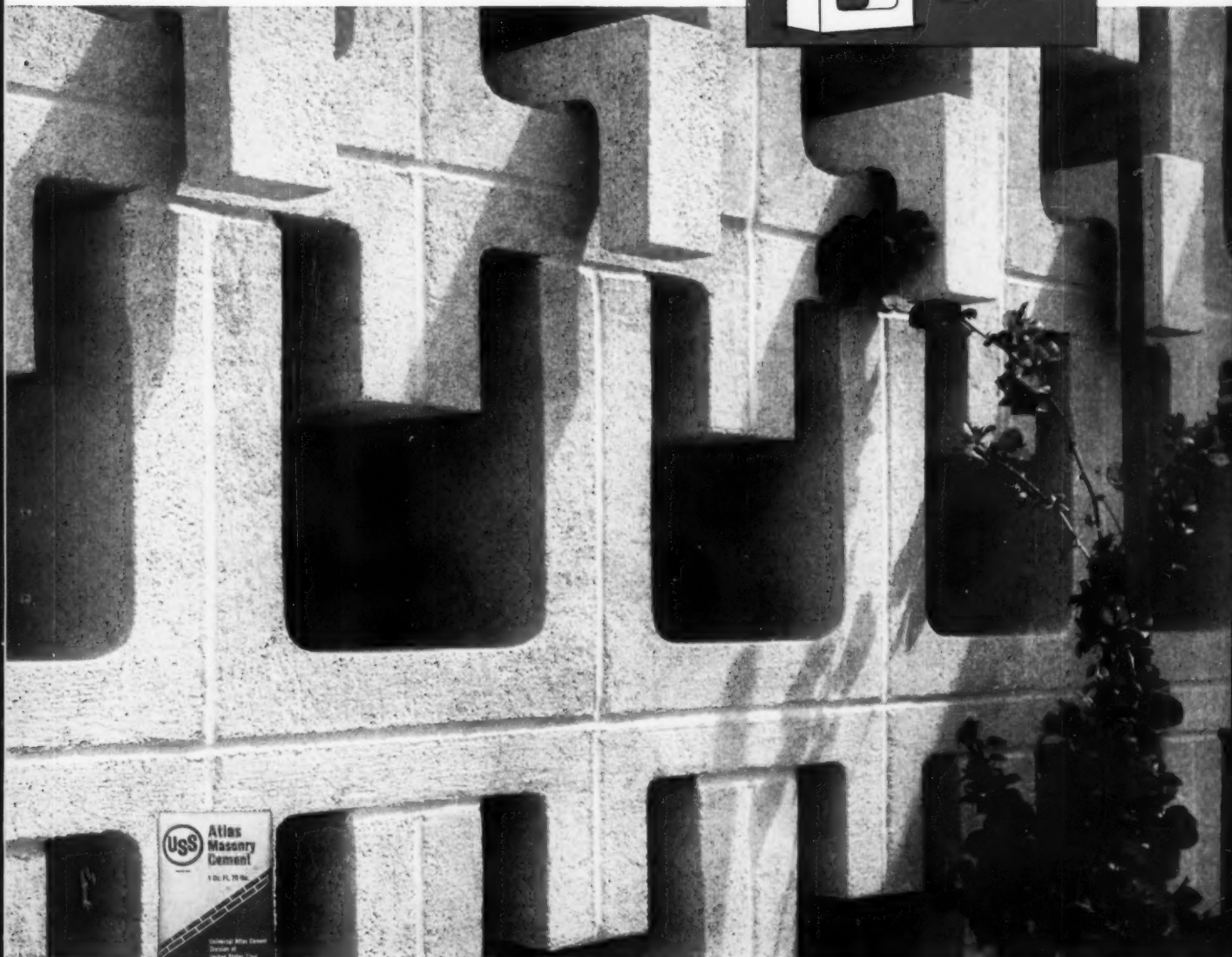
For information, phone your Reznor distributor, or write Reznor Manufacturing Co., Dept. 62C, Mercer, Pa.

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REZNOR HEATERS

"THE TOUGH BUYERS' LINE"

► Great new things
are shaping up in concrete block



For information on bond beam block, illustrated above, see your local concrete block manufacturer.

Atlas Masonry Cement provides the right mortar

Even standard masonry units such as the bond beam block are being used to create decorative patterns in exposed masonry construction. The effect shown was achieved with this block in two sizes, laid back to back to form a screen-type wall.

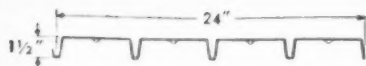
Whether standard building block or any of the new-type masonry units are used, ATLAS MASONRY CEMENT provides the right mortar. That's because it produces a smooth, easy-to-work mortar... assures a stronger bond... gives weathertight joints that are uniform in color. And ATLAS MASONRY CEMENT meets ASTM and Federal Specifications. For information on masonry cement, write Universal Atlas, Dept. M, 100 Park Avenue, New York 17, N. Y.

M-60
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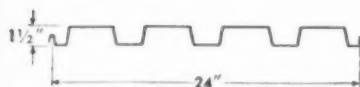
OFFICES: Albany • Birmingham • Boston • Chicago • Dayton • Kansas City • Milwaukee • Minneapolis • New York • Philadelphia • Pittsburgh • St. Louis • Waco



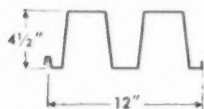
**Universal Atlas Cement
Division of
United States Steel**



A-DECK — For purlin spacings not exceeding 8'4". Narrow ribs provide deck surface that supports the thinnest or softest types of insulation.



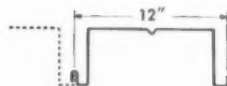
B-DECK — For spans to 10'0". Wide rib distributes metal for greater structural efficiency — gives higher section properties per pound of steel. Well suited for use as side wall panels.



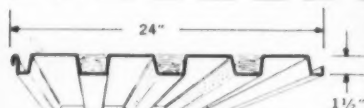
C-DECK — Carries normal roof loads over spans up to 24'0". Used extensively in canopies.



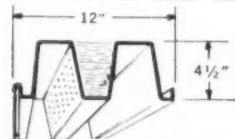
T-STEEL — New! Galvanized only. For clear spans to 32'0". Adaptable to acoustical and flush, luminous ceiling treatments. Provides superior diaphragm to resist seismic and wind loads.



H-DECK — New! For simple spans to 20'0" — 3" and 4 1/2" depths. Especially practical to cover walkways in shopping centers, schools, other installations.



B-ACOUSTIDECK — Two-in-one panel combines steel roof deck with acoustical ceiling having Noise-Reduction Coefficient of .70. Used for spans to 10'0".



C-ACOUSTIDECK — Offers same Noise-Reduction Coefficient as B-Acoustideck. Can be used for spans to 24'0".



RIBFORM — High-tensile, galvanized steel form for concrete slabs over spans up to 8'0". Three types: Standard, Heavy-Duty, Super-Duty (shown).

Inland Steel Deck
gets you under cover fast



Steel deck or centering

Plant-expansion projects and new buildings of many types get under cover fast and economically, when you specify an Inland roof system.

Inland steel deck is easy to handle and weld in place — in any weather that a man can work. One panel provides over 56 sq. ft. of coverage. Large areas are quickly ready for roofing crews.

Types A, B, C, and H decks are Bonderized, then covered with a baked-enamel primer that resists on-the-job damage. One field coat of paint over the primer on these decks usually does the job of two coats on ordinary decks.

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for poured construction



... you name it, INLAND has it!

In concrete-over-steel construction, Inland Ribform supports wet concrete with minimum deflection. Rigid sheets are quickly and inexpensively attached to supports — in place, they provide a safe work platform for crews.

Write for catalogs 240, 241, and 245 — or see Sweet's sections 2c/Inl, 11a/In, and 2a/In for full information on Inland steel roof deck and permanent centering. Inland Steel Products Company has a force of trained sales engineers capable of giving you the benefit of diversified experience on specific problems. Write or call your nearest Inland office to have one of these men contact you.

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The bill is higher than ever today when fire interrupts production. That is why architects, engineers and building management think in terms of "total fireproofness". A requirement of this concept is the scrutiny of every element of construction as to its flammability.

An additional contribution to "total fireproofness" has been made with the development of Pyro-Kure[®] vapor barriers. These U/L rated products (used in construction to eliminate condensation damage) employ paper, foil or plastic film laminations. The special adhesive used emits a gas at combustion temperature which snuffs out the flame making the product self extinguishing.

Pyro-Kure vapor barriers are unique in being per-

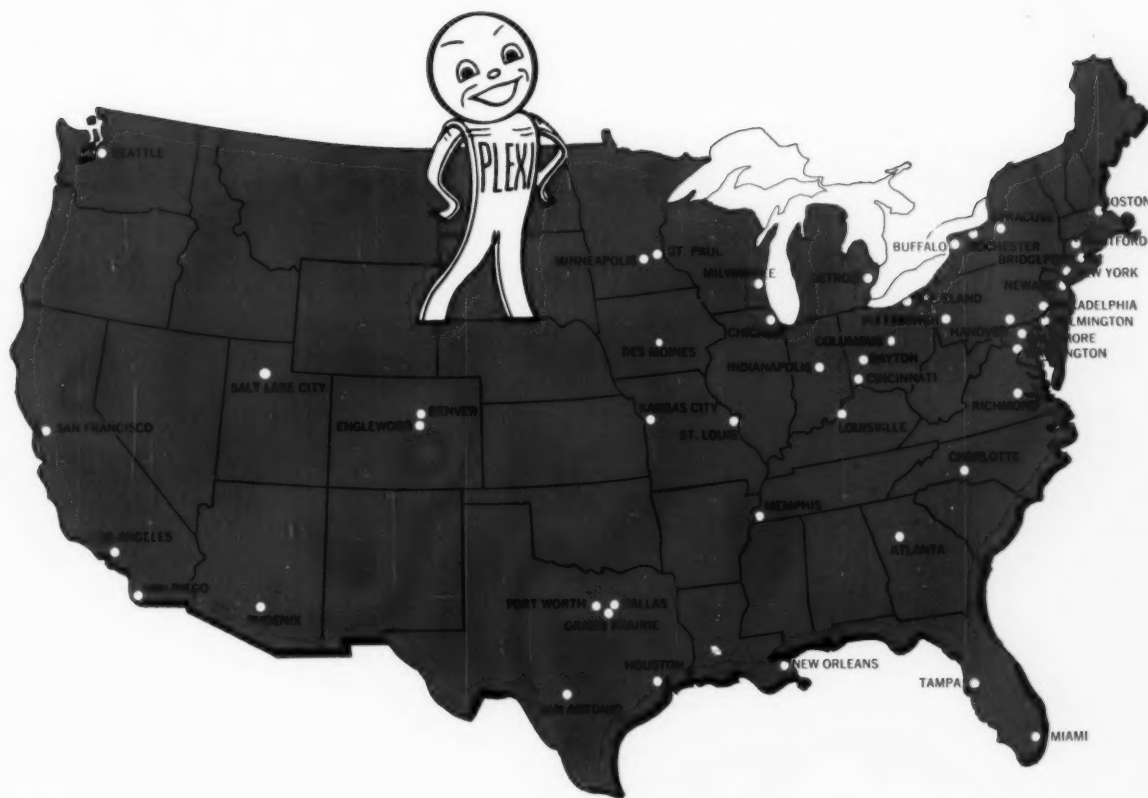
manently non-combustible. They have a perm rating of less than 0.1 and are being used as insulation facing, pipe jacketing and duct lining. Leading insulation manufacturers are combining them with their products. Write Dept. AS2 for technical literature and samples on this vapor barrier line.



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FLINTKOTE ANNOUNCES A IN ROOF INSULATION...NEW!

keeps Bitumen on the roof instead of



SAMPLE OF ORDINARY ROOF INSULATION SHOWING ASPHALT ABSORPTION.

ASPHALT ABSORBED: LBS. per 100 SQ. FT.	
BRAND X ASPHALT IMPREGNATED	32
BRAND Y ASPHALT COATED	32
BRAND Z ASPHALT IMPREGNATED	44
BRAND Z ASPHALT COATED	45

Excessive absorption of bitumen wastes both material and labor. It also results in reducing the thermal resistance of the roof insulation.

**EVERYBODY
BENEFITS
WITH NEW
GOLD-N-KOTE!**

ARCHITECTS can specify Gold-N-Kote for a superior bonding at lower costs.

BUILDING OWNERS save on maintenance cost through added insulation. There's less danger of blow-offs, fewer blisters and wrinkles.

GENERAL CONTRACTORS can do faster jobs.

ROOFING CONTRACTORS get more effective use of bitumen, faster application, fewer call backs.

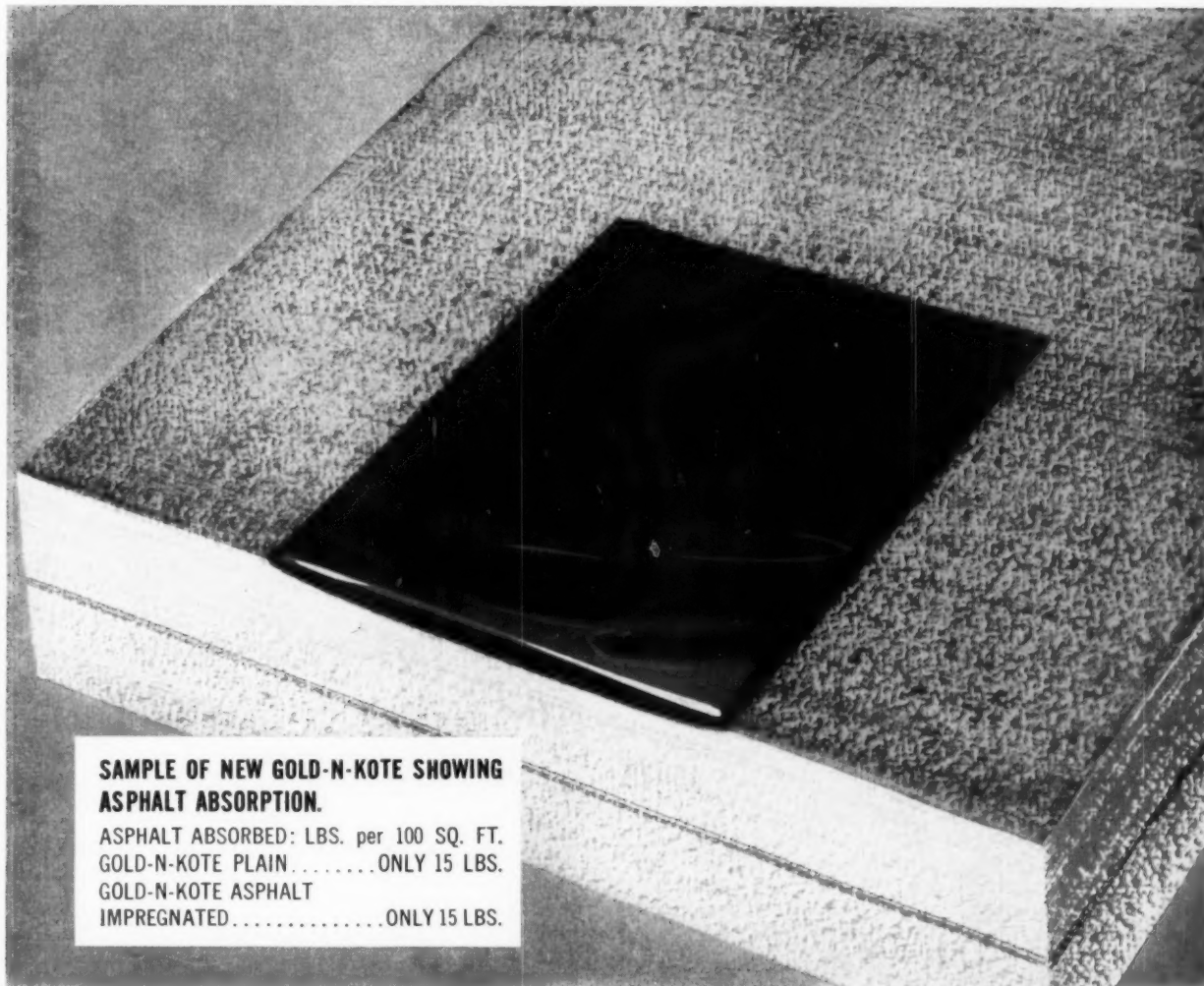
MOP MEN take less effort to swing the mop.

FELT LAYING MEN have more time to align felt rolls.

BONDING ROOFING MANUFACTURERS make fewer "pay-outs" from failures caused by improper adhesion.

GREAT NEW DEVELOPMENT GOLD-N-KOTE*

in it to provide a superior bond at lower costs!



**SAMPLE OF NEW GOLD-N-KOTE SHOWING
ASPHALT ABSORPTION.**

ASPHALT ABSORBED: LBS. per 100 SQ. FT.
GOLD-N-KOTE PLAIN.....ONLY 15 LBS.
GOLD-N-KOTE ASPHALT
IMPREGNATED.....ONLY 15 LBS.

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Manufacturer of America's Broadest Line of Building Products

THE FLINTKOTE COMPANY

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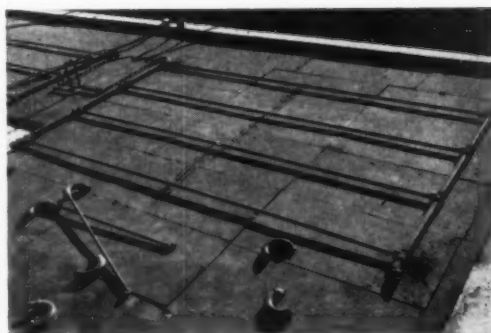


At the end of the day, steel pipe brings the comforts of home to the airmen of tomorrow

Saturday's parade ends a schedule-filled week for 1,500 cadets at the U. S. Air Force Academy near Colorado Springs. From the parade grounds the cadets return to their quarters . . . the world's most modern in comfort and convenience for housing the nation's air-leaders of tomorrow.

Steel pipe contributes much to making the Academy the world's finest. For radiant heating over five miles of *steel pipe* were used. In the 17,800 acre Academy Complex, the plumbing, vent and drainage lines were fabricated from *steel pipe*. And, it was used because—in an evaluation of service life, ease of fabrication, availability and cost—*steel pipe* proved superior to any other tubular product.

At the U. S. Air Force Academy, as in buildings throughout the nation, *steel pipe* is the perfect, low cost tubular conductor of water, gas and oil. The high thermal conductivity and structural strength of *steel pipe* make it ideal for many applications including radiant heating, cooling, refrigeration, ice making, snow melting, electrical conduit and myriads of residential, commercial and industrial applications.



Prefabricated steel pipe sections resulted in quick and easy installation for the radiant heating system at the Academy. Because the coefficient of expansion of steel pipe and the concrete slab in which it's embedded are compatible—long service life is assured.

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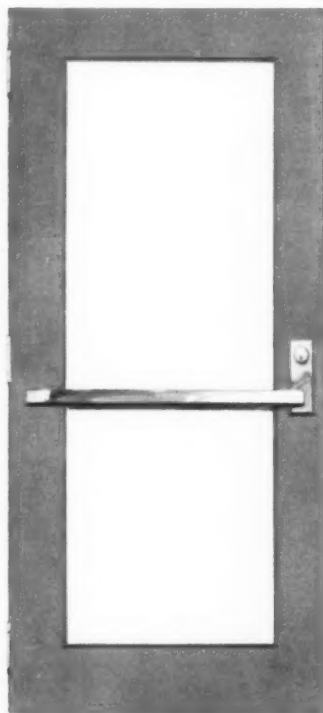
WHY IN THE WORLD WOULD ANYONE WANT ANYTHING BUT THIS NEW KIND OF DOOR!



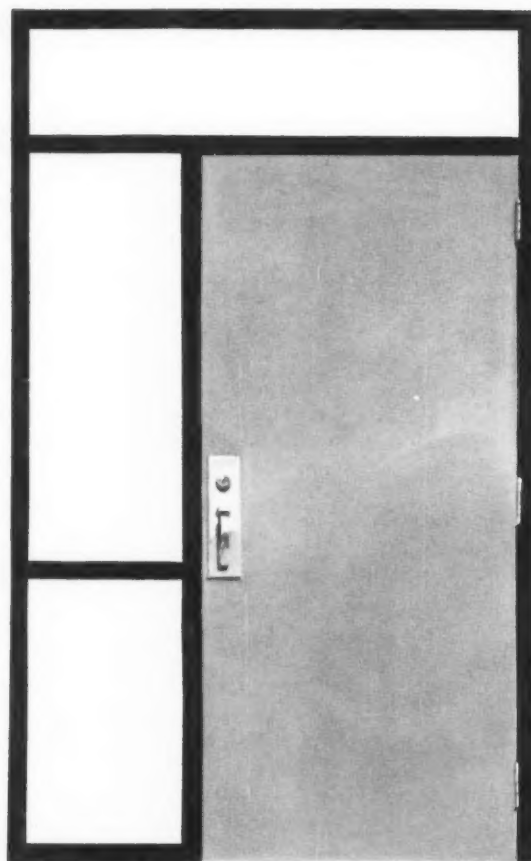
New, low-cost concealed closures and seamless flush appearance give uncluttered look.



All styles available as complete package—including door, frame and hardware.



Brand-new colored metal, two-tone and high-fashion hardware. Custom look!



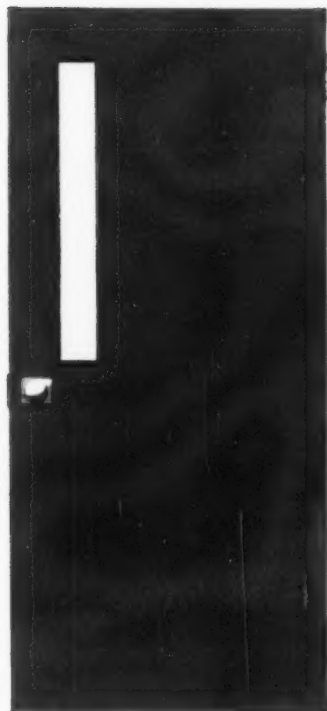
Tremendous variety of borrowed light, transom and sidelight arrangements—all standard!

Doors swing from rugged steel grid core—not face. Heavier gauge steel.

Pre-primed at the factory—ready to paint any color you choose.

IDEAL FOR SCHOOLS, HOSPITALS, DORMITORIES, OFFICES, FACTORIES, APARTMENTS, CHURCHES!

Complete line of Underwriters-labeled doors, frames and hardware!



New, compact rectangular closer projects only $1\frac{3}{8}$ " from face.

Compare Fenestra's *new* line of hollow metal doors with any other wood or metal door on any basis of styling, design flexibility or cost

COMPARE THEM WITH WOOD DOORS

Styling. New $1\frac{3}{8}$ -inch doors match $1\frac{3}{4}$ -inch doors exactly. Seamless, flush appearance. New glass light variations, including Slim Light. And now, the widest range of standard hardware ever offered in metal doors—colored metal, two-tone, and high-fashion hardware that matches in beauty anything available on custom doors.

Wear. Fenestra Hollow-Metal Doors won't warp, rot, swell or stick. They resist impact; stand up under heavy use. And they slash maintenance costs!

Cost. Fenestra doors are offered in a complete package: door, frame and hardware for one package price. Pre-primed, they save sizing and priming . . . can be painted any color. Fenestra doors cost less installed than comparable wood doors!

COMPARE THEM WITH OTHER METAL DOORS

Styling. Only Fenestra offers Twin-Door full flush styling—such a wide variety of glass-light stylings—so many choices in beautiful hardware. And only Fenestra offers the new 7' 2" modular height door as a standard product for cement-block buildings!

Flexibility. Twin-Door styling lets you specify less expensive $1\frac{3}{8}$ -inch doors, where indicated, without losing continuity of design. They match $1\frac{3}{4}$ -inch doors; take the same hardware. Frame depths for all walls.

Wear. Rustproofed Fenestra doors feature the heaviest gauge metal in the industry—swing from rugged steel-grid core rather than the face or skin.

Service. Complete packages—frame, leaf and hardware—are stocked by local dealers and Fenestra warehouses; shipped pre-machined and ready to install. No delays due to uncoordinated deliveries!

MAKE A COMPLETE COMPARISON

See Sweets File 16b/Fe; call your Fenestra man (he's in the Yellow Pages); or write Fenestra Incorporated, Dept. AR-06, 2252 East Grand Blvd., Detroit 11, Michigan.



NEW! Neater looking 7' 2" modular door for cement block buildings—matches courses—reduces labor costs.

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Fenestra

INCORPORATED

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Engineered windows for industrial, institutional and monumental buildings

Hollow metal doors

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WITH EASY CHAIR COMFORT

by *Cramer*



Model 1421



Model 1423

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625 Adams Street, Dept. AR-6, Kansas City 5, Kans.

EPCO

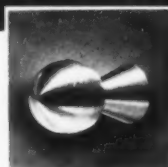
→ KNOBS FOR FINE CABINETS AND FURNITURE

These new pulls are carefully designed to give lifelong beauty and service. Each fulfills all the necessary requirements for easy operation, clean and handsome appearance, ease of installation and freedom from maintenance worries.

OTHER COLORS AVAILABLE



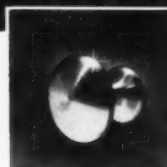
KP-50 Pull for cabinet doors in clear anodized aluminum or lacquered solid brass bar stock. Other finishes available.



KP-51 Pull for cabinet doors in anodized solid aluminum or lacquered solid brass bar stock. Other finishes are available.



KP-55 Pull for cabinets and doors in anodized solid aluminum or lacquered solid brass bar stock. Other finishes available.



KP-56 Pull for cabinets and doors. In anodized solid aluminum or lacquered solid brass bar stock. Other finishes available.

EPCO

→ PULLS FOR DRAWERS AND DOORS

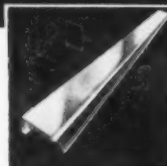
Here is a family of beautiful drawer and door pulls that answers all the problems for commercial furniture and cases. Many unique effects can be achieved . . . they install easily and quickly . . . they're sturdily designed to give years of trouble-free service.

OTHER COLORS AVAILABLE

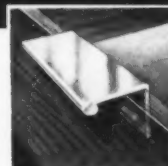


FREE 20-PAGE CATALOG
On the complete EPCO line of magnetic and friction catches, E-Z glide track and glides, and drawer pulls will be sent on request.

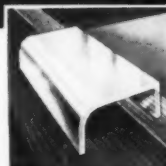
SEE SWEET'S CATALOG
For the complete EPCO line under Architectural File No. 38g-En and Light Construction File No. 7a-En.



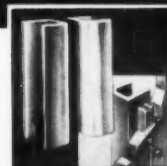
DP-40 Drawer pull. Extruded aluminum with anodized finish. In 3 7/8" and 6" lengths. Other colors available.



DP-41 Extruded aluminum drawer pull. Flat or angled to specification. 1 1/2" and 6" lengths. Finish anodized. Other colors available.



DP-43 Extruded aluminum drawer pull for heavy duty service. In 3 7/8" and 6" lengths. Anodized finish. Other colors available.

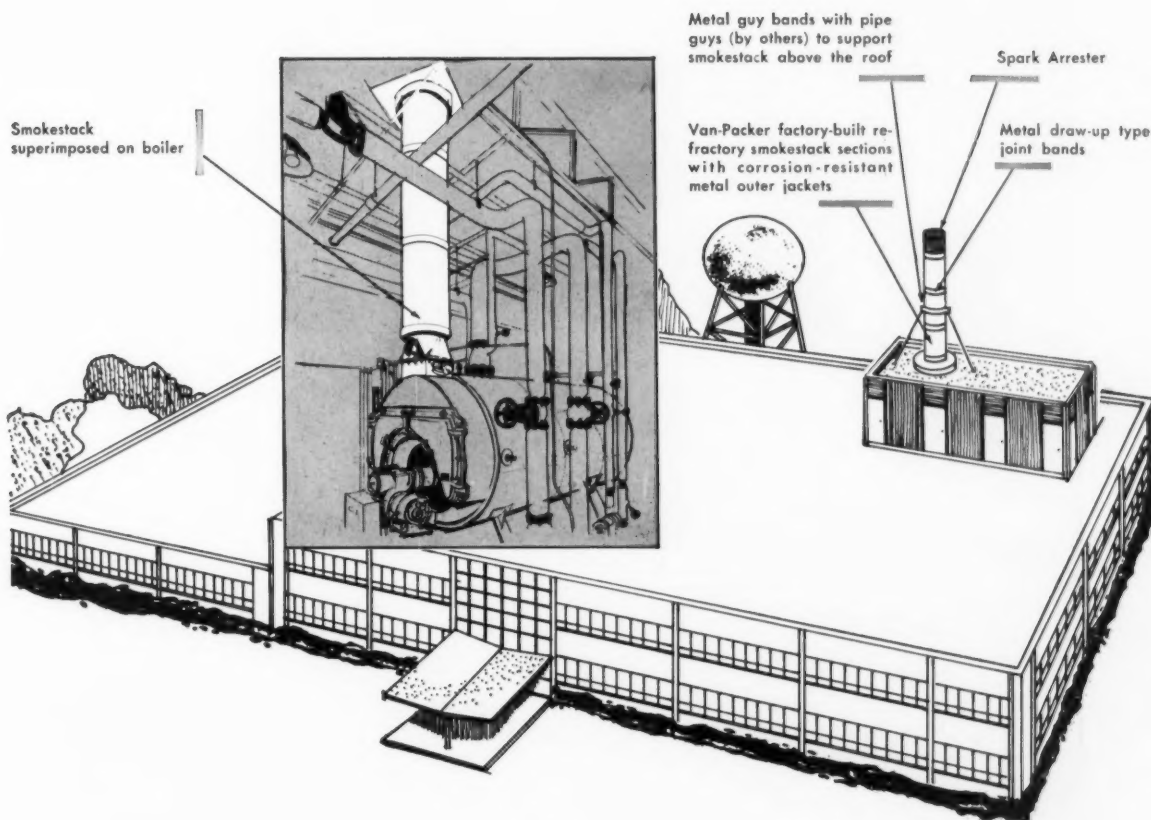


DP-44 Extruded aluminum door and drawer pull. In 3 7/8" and 6" lengths. Anodized finish. Other colors available.

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THE ENGINEERED PRODUCTS COMPANY
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and save \$100,000
in perishable foods—**

**our National Tube Distributor
helped us finish the job
in 12 hours,"**

says Mr. Paul E. Grunau, Secretary-Treasurer,

Paul J. Grunau Company, Mechanical Contractors, Milwaukee, Wisconsin

"We got this emergency job late at night," says Mr. Grunau.

"Yet, our National Tube Distributor, the Rundle-Spence Company gave us immediate service. But our National Tube Distributor is always ready for critical situations. He keeps two trucks on a stand-by basis, and there's a four-man crew on 15-minute call seven days a week.

"Rundle-Spence offers expert engineering and technical advice, constantly feeds us new product information, and is a single, complete source of steel tubular products. We also know that our National Tube Distributor has a wide range of available pipe sizes— $\frac{1}{8}$ -inch to 24-inches. We've standardized on National Tube products for all piping installations, because they're the finest tubular products in the world."

Why don't you combine the fast, dependable service and technical assistance of a National Tube Distributor with USS National Steel Pipe? The next time you need top-quality steel pipe for plumbing, heating, power or air-conditioning applications, see your local National Tube Distributor.

USS and National are registered trademarks



**National Tube
Division of
United States Steel**

*Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors
United States Steel Export Company, New York*

Mr. Paul E. Grunau, center, talking over an installation problem with Mr. Morton R. Spence, left, of Rundle-Spence, National Tube Distributor, and Mr. Leslie Smith, National Tube's representative in Milwaukee. This type of round-table discussion indicates the close relationship between contractor, National Tube Distributor and National Tube.



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*Frick Equipment Used Exclusively
For Original Equipment Plus 37 Additional
Orders In Past 16 Years.*

The Barnes Hospital-Washington University Medical Center in St. Louis is a good example of the dependability and versatility of Frick refrigeration and air conditioning equipment. Since 1944, when the first unit of Frick equipment was installed, 37 repeat orders have raised the number of Frick units to 53.

Today, 13 "ECLIPSE" compressors, 29 low pressure units, and 11 unit air conditioners are in service.

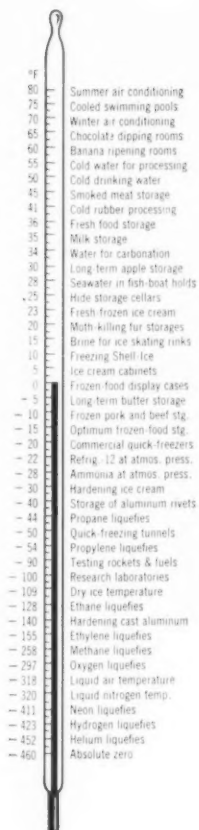
The medical center facilities themselves have expanded to include eight hospitals with nearly a thousand beds, schools of nursing, dentistry, and occupational therapy . . . clinics, laboratories, lecture rooms, and libraries.

All of the air conditioned operating rooms are provided with 100% fresh air which is filtered electrically. The main kitchens, cafeteria and dining rooms are all air conditioned with Frick equipment. All cooler and freezer units are automatically defrosted. Some units maintain temperatures from 0° to 100° F., with varying humidity control.

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If your interest is industrial or institutional refrigeration or air conditioning, a Frick engineer will be happy to discuss it with you at no obligation.

FRICK COMPANY
Waynesboro, Pennsylvania



HALL-MACK®

bathroom accessories



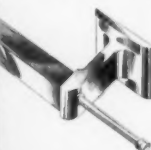
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Handsome lucite and chrome Towel Ring.



Concealed Scale — built in the wall for utmost convenience and safety.



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Always on line...sight along the edge of a course of Hines Allwood Allweather Siding and see for yourself how flat and straight it lies. Under two coats of paint, the joints are virtually invisible. Here's *proof* of the superiority of this siding, which builders are using on expensive homes because of its durable attractiveness and on their lowest-priced models because of its economy.

DIMENSIONALLY STABLE FOR BETTER PERFORMANCE... SAVES YOU 20% OR MORE ON MATERIALS AND LABOR

Hines Allwood Allweather Siding consists of a smooth hardboard surface laminated to a crossply of fir veneer and a kiln-dried lumber core. It's hot-press bonded with waterproof glue, combining the advantages of hardboard, plywood and solid wood...so rigid that *no sheathing is needed* with studs 16" on center. The fine-grained material is easy to saw, won't split or splinter and *resists abrasion and hammer dents*. Tempered and sealed with pentachlorophenol to resist moisture, decay and insect

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- NAIL WITHOUT SPLITTING
- EASY TO WORK
- A ONE-MAN OPERATION



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since the bolt replaced the boulder*

The new ***MS® 1851-II TWO-WAY LOCK**
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...gives double protection and exit safety!

The MS® 1851-II Two-Way Lock is specifically designed for the control of *Main and Obvious* entrance pairs of doors for places of public assemblage. One 360° turn of the key throws or retracts both a *lock* and *threshold bolt*, simultaneously locking or unlocking both doors. This insures that the *entire opening* is usable during business hours and places the responsibility of traffic control on management. The key can be removed only in the locked or unlocked position. Holding special interest for insurance companies and organizations whose professional concern is public safety, this purposefully designed deadlock adds strength to the narrow stile installation and assures exit freedom.



More than a slogan, **MAXIMUM SECURITY** is the exclusive basic principle that governs the design and manufacture of Adams-Rite locking devices that are, in fact, stronger than the doors and windows in which they are installed, providing the ultimate in security and safety.

An outstanding example of this principle in action is the new MS® 1851-II. Unique in deadlock design and construction, the MS® 1851-II operates unlike standard bolts that vacate the lock when projected. The MS® counter-balanced bolt retains as much bolt within the lock stile as projected. Actually bridges the opening with a solid bar of steel (from as short a backset as 3/4"), making it impossible to force entry without destroying the door channel itself. This, coupled with the joint action of the 4015 two-way converter threshold bolt, and the lifetime strength of dichromate zinc plated steel construction, maintains Maximum Security. The MS® 1851-II which eliminates locking hardware in the inactive door is a combination of the basic MS® 1851 Lock and No. 4015 Two-Way Converter. The 4015 may be stocked separately to convert any MS® 1851 series lock into an MS® 1851-II.

Quality Hardware for Over Half a Century

For additional detailed information and specifications, write

ADAMS-RITE

Manufacturing Company

Dept. AR-89, 540 West Chevy Chase Drive, Glendale 4, California

Adams-Rite also produces over 90% of all door hardware for the airframe industry.

TOTAL PRODUCT SATISFACTION

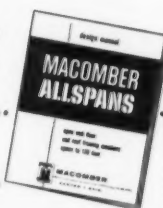


MACOMBER ALLSPANS set new standards for comparison

Throughout the building industry, Macomber ALLSPANS are synonymous with structural quality — erection economy. No other structural framing member gives the **architect** such comprehensive design and planning data. In no other open-web framing does the **engineer** work with such tested reserve strength, unencumbered by waste weight. And, this high-strength nailable framing brings the **contractor** over-all erection economies otherwise unobtainable.

Your local Macomber Sales Representative can cite instances — explain why — Macomber ALLSPANS deliver total product satisfaction. Call him today!

Get your next job scheduled early.
Mail coupon for full information.



NEW DESIGN MANUAL

Exclusive structural and economy advantages
... exact information for framing 8 to 120 feet.

NAME.....
COMPANY.....POSITION.....
ADDRESS.....
CITY.....STATE.....

AR 2-60A

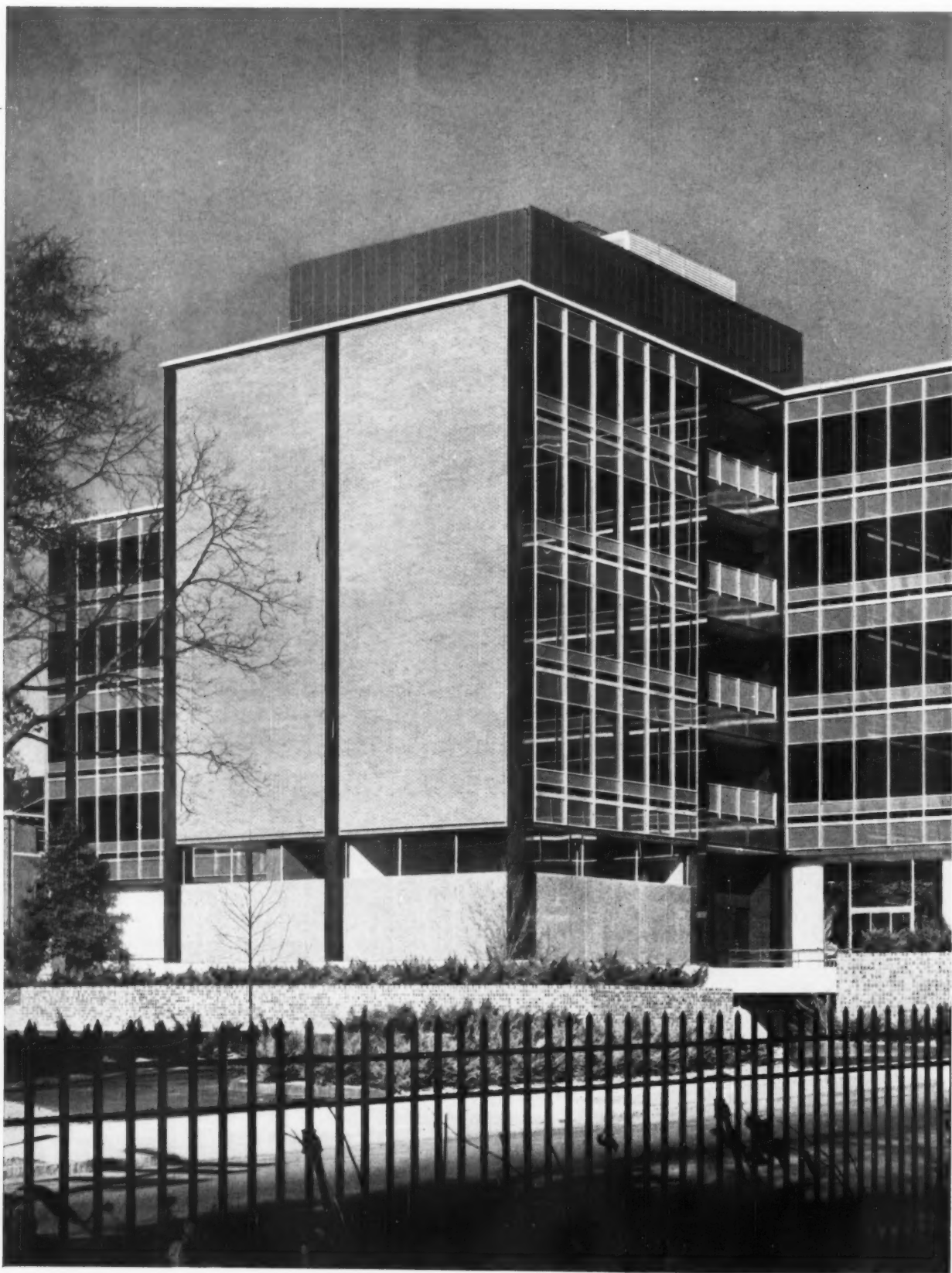


MACOMBER

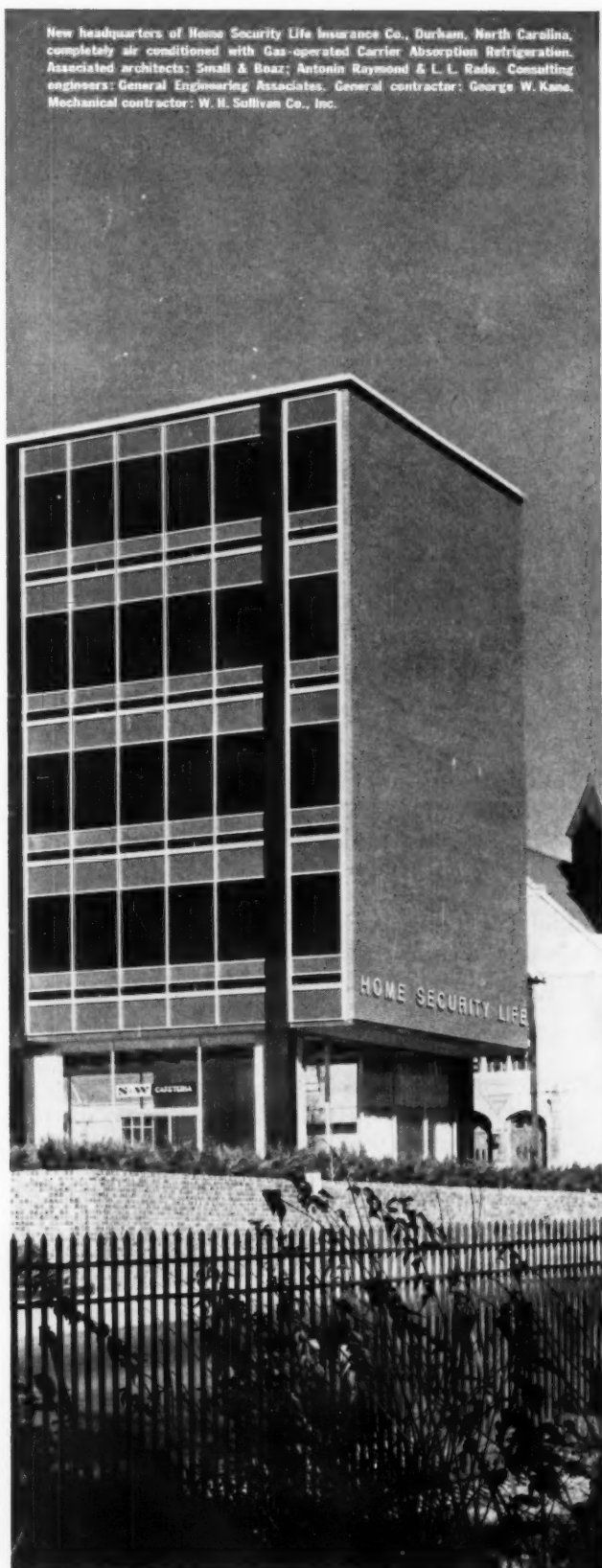
CANTON 1, OHIO

ALLSPANS • V-LOK • V-BEAMS • V-GIRDERS
BOWSTRING TRUSSES • ROOF DECK • STRUCTURAL STEEL

SEE OUR
CATALOG IN
SWEET'S
OR WRITE
FOR COPY



New headquarters of Home Security Life Insurance Co., Durham, North Carolina, completely air conditioned with Gas-operated Carrier Absorption Refrigeration. Associated architects: Small & Boaz; Antonin Raymond & L. L. Rado. Consulting engineers: General Engineering Associates. General contractor: George W. Kane. Mechanical contractor: W. H. Sullivan Co., Inc.

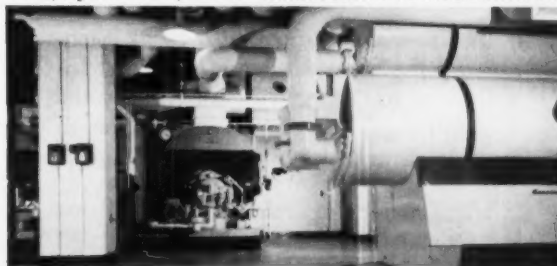


Insurance company insures comfort cooling with **GAS-operated CARRIER Absorption Refrigeration**

The attractive new home office of Home Security Life Insurance Company in Durham, North Carolina, is as modern in personnel comfort as in its design. It is completely air conditioned with one of the most efficient systems available — Gas-operated Carrier Absorption Refrigeration serving 190 Modular Weathermaster® room units.

The Carrier absorption system is the essence of simplicity and economy. No prime mover is required. The energy source is low-pressure steam from a gas-fired boiler. Water is the cooling agent. Boiler capacity is put to use on a year 'round basis ... cooling in summer, heating in winter. And thrifty gas keeps fuel costs low.

For comfort cooling at low cost, specify Gas and Carrier Absorption Refrigeration. Performance data and cost details are yours for the asking. Call your local gas company, or write Carrier Corporation, Syracuse 1, N. Y. **AMERICAN GAS ASSOCIATION**



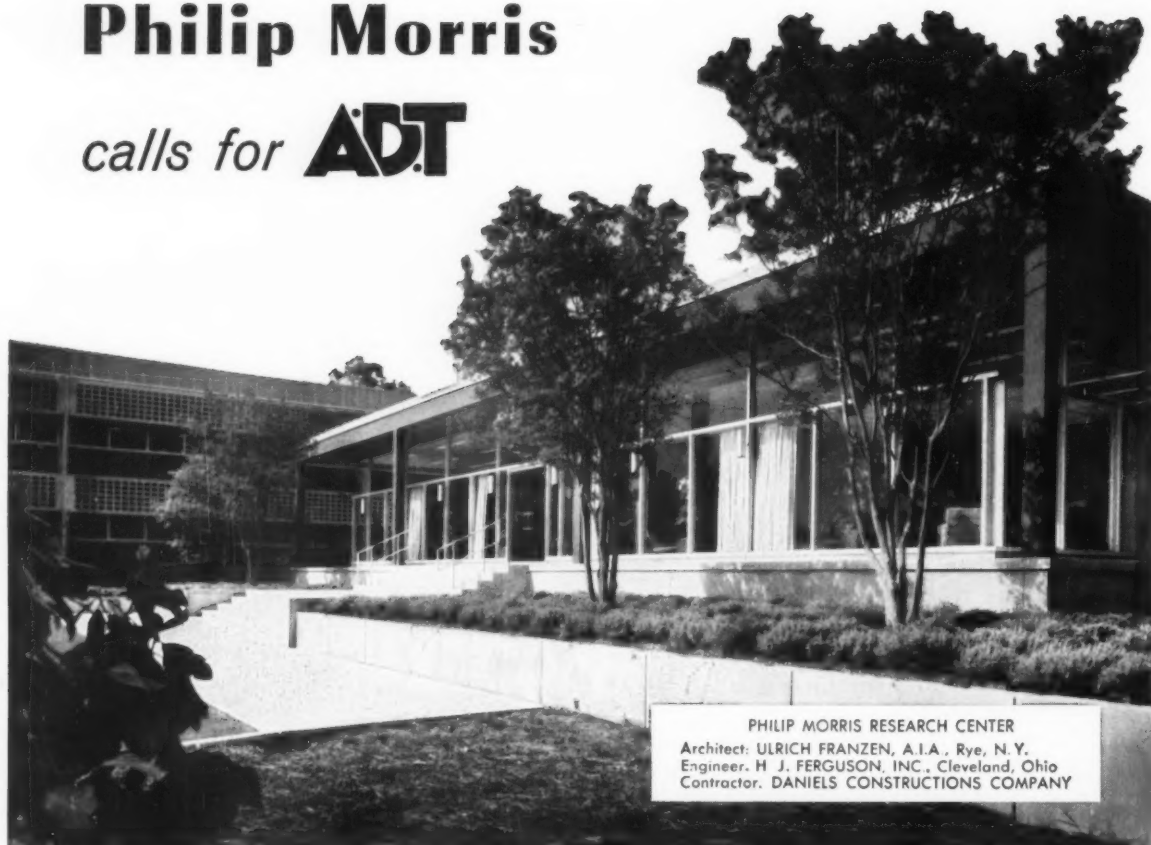
Good-looking machine room. Reflects up-to-date design of entire building. Here the gas-operated Carrier unit operates at 250-ton capacity to cool 575 GPM water from 52.5 F to 42 F, when supplied with 12 psig steam. *Reg. U. S. Pat. Off.

FOR HEATING & COOLING GAS IS GOOD BUSINESS!



Philip Morris

calls for **ADT**



PHILIP MORRIS RESEARCH CENTER

Architect: ULRICH FRANZEN, A.I.A., Rye, N. Y.
Engineer: H. J. FERGUSON, INC., Cleveland, Ohio
Contractor: DANIELS CONSTRUCTIONS COMPANY

Yes, to safeguard its new research center at Richmond, Va., Philip Morris Inc. *did* call for the services of American District Telegraph Company.

ADT Protection has proved its value to Philip Morris at more than a score of their properties from coast to coast.

The new scientific facilities at Richmond comprise a multimillion-dollar investment. ADT was chosen to assure the continuity of operations as well as to provide security and protection.

Ultramodern in architecture, the three interconnected buildings are safeguarded by a combination of ADT central station

sprinkler supervisory and waterflow alarm service and Watchman's Reporting Service. This entire protection system is under constant electrical supervision by the ADT central station in Richmond.

ADT is proud to have been selected to protect these impressive Philip Morris buildings. We are also proud of our part in protecting the lives, property and profits of 70,000 other subscribers throughout the country.

Perhaps ADT can provide greater security for your property—with substantial savings. Why not call the ADT representative listed in your telephone book and find out?

Controlled Companies of

AMERICAN DISTRICT TELEGRAPH COMPANY

A NATIONWIDE ORGANIZATION

EXECUTIVE OFFICE: 155 SIXTH AVENUE, NEW YORK 13, N. Y.

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Now! Design with natural
wood...confident of
lasting beauty.

Another Roddis "first"

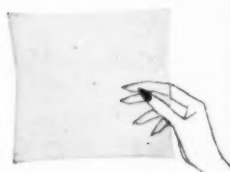
TIGACLAD
WOODS
STAY BEAUTIFUL
EVEN UNDER
ROUGH TREATMENT.
NEED MINIMUM
MAINTENANCE.

ORDINARY UNFINISHED WOOD

Tigaclad process brings out the full beauty of wood...gives lasting protection

Beautiful woods now protected from heat, stains and wear
by a new invisible shield—**Roddis Tigaclad®!**

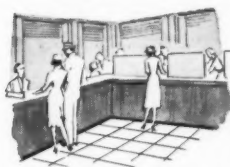
The newest concept to provide protection for
the beauty of natural wood.



Invisible Tigaclad
plastic overlay



Tigaclad paneling
for offices



Mar-resistant Tigaclad
wainscoting



Ideal for
high traffic areas

Tigaclad protects beautiful wood. It is a *new-type* transparent plastic shield that brings out the richness and warmth only genuine wood offers—and protects it indefinitely!

Tigaclad is tough! It shrugs off scuffs, stains and dirt, resists abuse that ruins ordinary wood finishes. Torture-tests prove Tigaclad is unaffected by alcohol, nail polish remover, coffee, tea . . . even boiling water! Scrub Tigaclad with scouring powder . . . drop a cigarette on it. No harm done!

Tigaclad is unique! It starts with a special core of Phenolic Timblend (Roddis' exclusive man-made board). Hardwood veneers are bonded to this warp-free core. Finally, the special new plastic sheet is fused with the wood by heat and pressure.

Result? A warm, hand-rubbed look . . . a beautiful, mar-resistant, genuine wood . . . that never needs refinishing.

If you want *permanent, natural* beauty for any wood application you will do well to investigate Tigaclad. Write for generous free sample and new brochure.

Roddis Plywood Corporation, Marshfield, Wisconsin, Dept. AR-660
Please send free sample and new Tigaclad brochure.

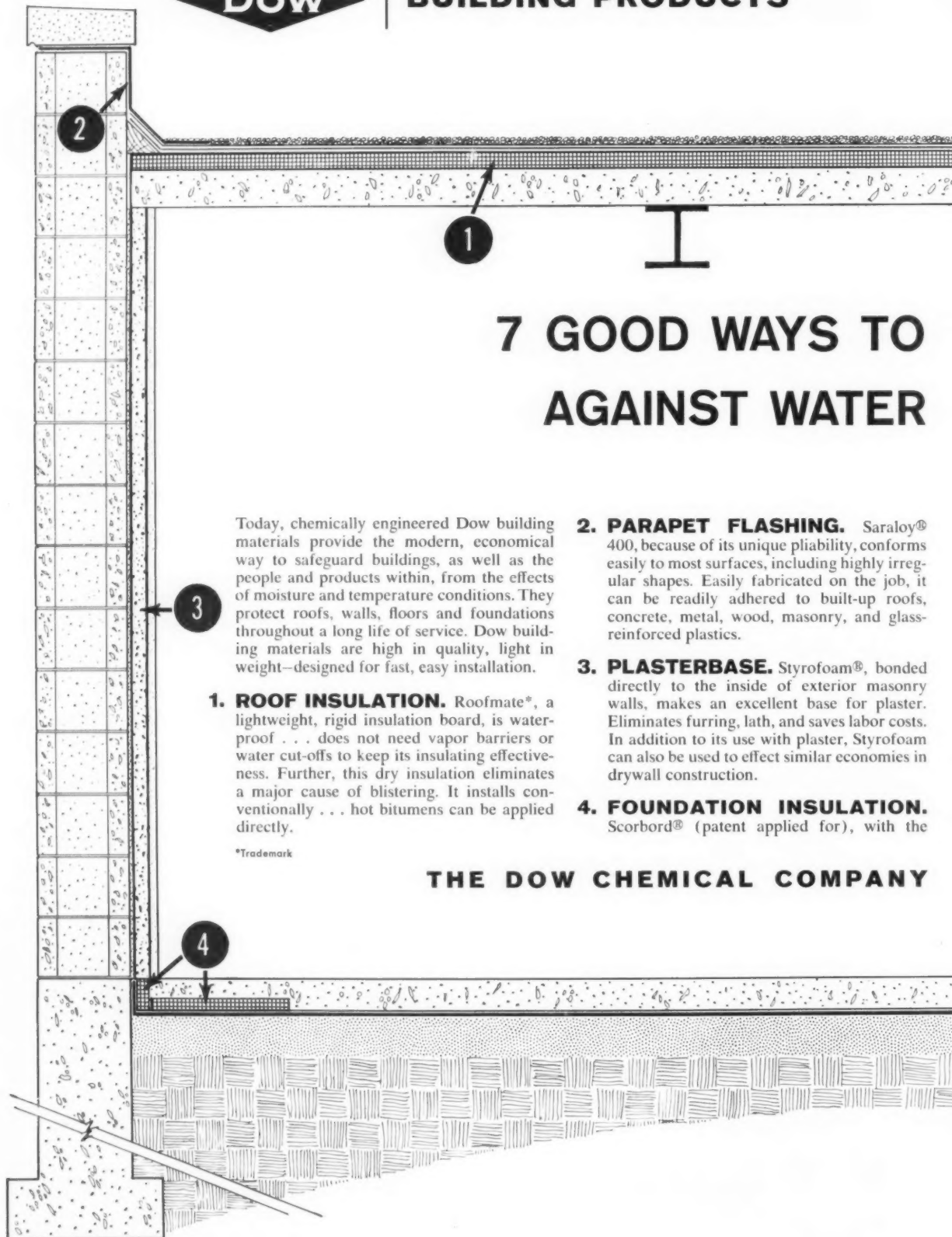
Name _____
Company _____
Address _____
City _____ State _____

Roddis

DOES SUCH WONDERFUL THINGS WITH WOOD



BUILDING PRODUCTS



7 GOOD WAYS TO AGAINST WATER

Today, chemically engineered Dow building materials provide the modern, economical way to safeguard buildings, as well as the people and products within, from the effects of moisture and temperature conditions. They protect roofs, walls, floors and foundations throughout a long life of service. Dow building materials are high in quality, light in weight—designed for fast, easy installation.

- 1. ROOF INSULATION.** Roofmate®, a lightweight, rigid insulation board, is waterproof . . . does not need vapor barriers or water cut-offs to keep its insulating effectiveness. Further, this dry insulation eliminates a major cause of blistering. It installs conventionally . . . hot bitumens can be applied directly.

*Trademark

- 2. PARAPET FLASHING.** Saraloy® 400, because of its unique pliability, conforms easily to most surfaces, including highly irregular shapes. Easily fabricated on the job, it can be readily adhered to built-up roofs, concrete, metal, wood, masonry, and glass-reinforced plastics.

- 3. PLASTERBASE.** Styrofoam®, bonded directly to the inside of exterior masonry walls, makes an excellent base for plaster. Eliminates furring, lath, and saves labor costs. In addition to its use with plaster, Styrofoam can also be used to effect similar economies in drywall construction.

- 4. FOUNDATION INSULATION.** Scorbord® (patent applied for), with the

THE DOW CHEMICAL COMPANY



PROTECT A BUILDING AND WEATHER

exclusive scored "snap-off" feature, effectively insulates foundation perimeters—keeps moisture out, heat in. New thicknesses and pre-scored widths make it easy to meet the new FHA-MPS requirements with Scorbord.

5. MOISTURE BARRIER. Polyfilm®, Dow's high quality polyethylene film, makes an ideal moisture barrier under floor slabs. Also excellent for use as temporary enclosure, curing blanket, and moisture barrier for walls and roofs.

6. CAVITY WALL. Styrofoam, Dow's expanded polystyrene, keeps heat in and moisture out *permanently*. Its low "K" factor, unyielding water resistance, durability, and high mechanical strength make it a su-

perior cavity wall insulation.

7. EXPANSION JOINT. Saraloy 400, a new elastic sheet flashing, *permanently* seals expansion joints. Saraloy 400 has exceptional elastic recovery, making it expand and contract along with the materials to which it is bonded. Pliable and easy to install, Saraloy 400 can be readily cut and fitted on the job.

FOR MORE INFORMATION

including other application suggestions, contact your nearby Dow sales office or write to THE DOW CHEMICAL COMPANY, Midland, Mich., Dept. 1707N6.

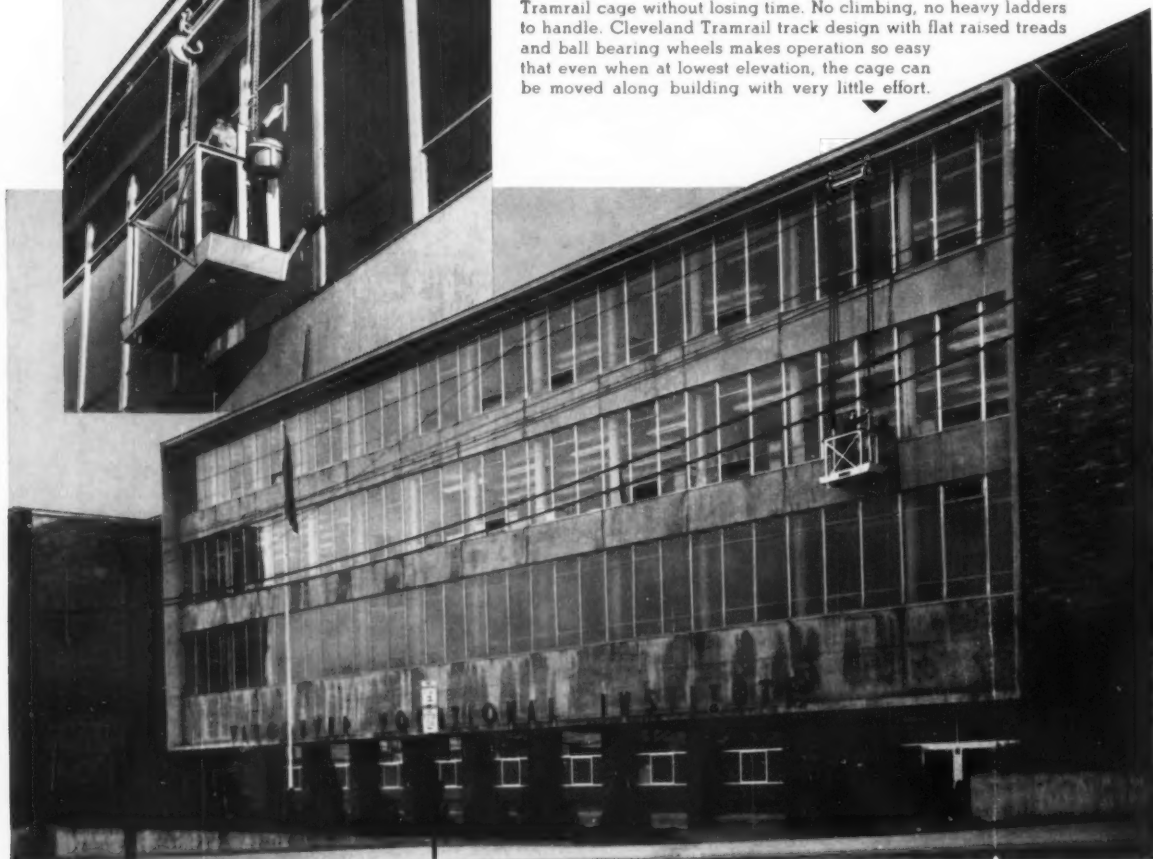
MIDLAND, MICHIGAN

An Easy Way to Keep Windows Clean



Because the cage is easily moved horizontally or vertically, all portions of a window are readily reached. The cage has a railing which provides good protection and supports for washing buckets.

This washer travels from window to window in the Cleveland Tramrail cage without losing time. No climbing, no heavy ladders to handle. Cleveland Tramrail track design with flat raised treads and ball bearing wheels makes operation so easy that even when at lowest elevation, the cage can be moved along building with very little effort.



LARGE window walls have important advantages that make them very much worthwhile, but one thing is certain: they must be washed periodically.

Cleveland Tramrail equipment speeds window washing, because it enables a man to reach any window quickly and provides him with a safe, convenient place from which to work.

The equipment consists of an overhead track mounted near the roof of a building, a carrier which operates on the track, a hoist and the washer's cage attached to the latter. The cage can be moved along the track, raised or lowered by the washer while in the cage.

Windows can be washed in one-half or less the time normally required. Even windows designed for washing from the inside are cleaned more quickly with Cleveland Tramrail. The washer need not walk from office to office, carry

buckets and materials, move desks, chairs and overcome other obstacles. Instead, he propels himself from window to window with no hurdles in the way.

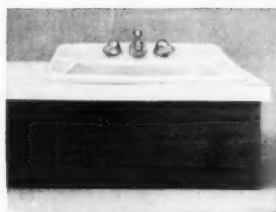
Whether you are concerned with window washing in an existing building or for a new one being planned, get the facts on hand-propelled and electrically driven Cleveland Tramrail window washing equipment. Ask for free copy of booklet No. 2022-A



CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 2525 E. 290 ST. • WICKLIFFE, OHIO



New *Brian* "Uni-Rim" design eliminates conventional metal rim. Lavatory is available in color or snowy white.



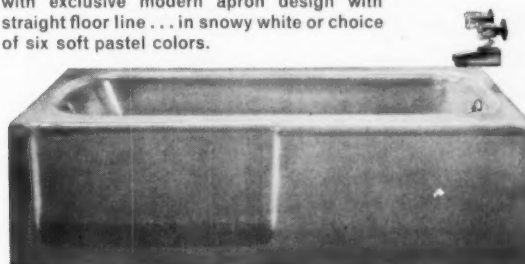
Brian lavatory can be installed on any type counter top—marble, tile, plastic or wood.

Exciting news for architects, builders, plumbing wholesalers and contractors is the revolutionary new *Brian* vitreous china counter-top lavatory . . . another "first" in style and design from Eljer. Exclusive "Uni-Rim" design eliminates the costly metal rim between lavatory and counter top . . . unique "J" clip assembly permits fast, economical installation *without tools!* More than 1,850,000 homeowners and prospective homeowners (*your customers*) are being "sold" on the new *Brian* lavatory through distinctive full-page, four-color advertisements in leading national magazines.

ELJER
Division of The Murray Corporation of America

3 Gateway Center
Pittsburgh 22, Pa.

New *Sorrento* 5' enameled iron recess bath with exclusive modern apron design with straight floor line . . . in snowy white or choice of six soft pastel colors.





"AND WHY,
MIGHT I ASK,
DID WE NOT
INSIST ON A
BARRETT ROOF?"

Steig



FOR A QUALITY ROOF, IT'S **BARRETT**

- FINEST MATERIALS... BOTH ROOFING AND ROOF INSULATION
- APPLIED BY BARRETT APPROVED ROOFERS
- BACKED BY BARRETT ROOF INSPECTION SERVICE

Taking chances can be fun. But if you like to play it safe—at least where roofs are concerned—specify Barrett. Pitch or asphalt, applied over Barrett surface-sized roof insulation, adds up to roofs that will be giving trouble-free service when the present board chairman's son is board chairman.



ACROSS THE BOARD

Barrett's SPECIFICATION® Roof is the **only** 25-year bonded pitch and felt roof. For buildings requiring an asphalt flat roof, we've got the best, too—the new ANCHORBOND†. And now we've added the finest fiberboard roof insulation. For 106 years, Barrett has offered the finest in built-up roofing materials.

BARRETT IS OUT TO HELP YOU! With a line of dependable, highest quality building materials that includes: ASPHALT SHINGLES • ROLL ROOFINGS • FIBERBOARD PRODUCTS • ALUMINUM SIDING • GYPSUM PRODUCTS • PROTECTIVE COATINGS AND CEMENTS.

BARRETT DIVISION
40 Rector Street, New York 6, N. Y.



†Trade Mark of Allied Chemical Corporation

Builder: Turner Construction Company. Architects & Engineers: Voorhees Walker Smith Smith and Haines. Mechanical Contractor: Lloyd E. Mitchell, Inc. Pipe Jobber: Lee L. Dopkin, Inc., of Baltimore. Owners: Sinai Hospital of Baltimore, Inc.



Dedicated to Longevity

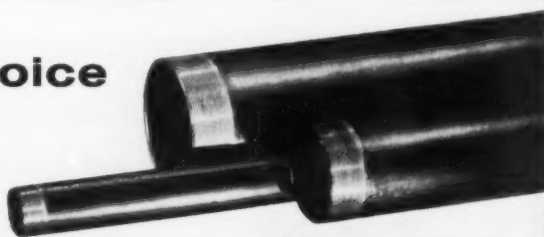
BOTH THE HOSPITAL...AND ITS STEEL PIPE

Name: The new Sinai Hospital
Location: Baltimore, Md.
Dedication: September 20, 1959
Capacity: 483 beds
Floor Area: 600,991 sq ft
Cost: \$20,000,000

Name: Bethlehem general-purpose steel pipe
Location: Plumbing and heating lines
Quantity: 300 tons
Sizes: 2 through 4 in. continuous butt-weld pipe
5 through 16 in. electric resistance-weld pipe
Cost: Lowest of all piping materials

Steel Pipe is First Choice

*FOR LASTING STRENGTH...
ECONOMY...WORKABILITY*



Insist On Steel Pipe Made in USA

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



another first from **Bilt-Well**
by **Caradco**



Super-Therm

**removable
double-hung windows**

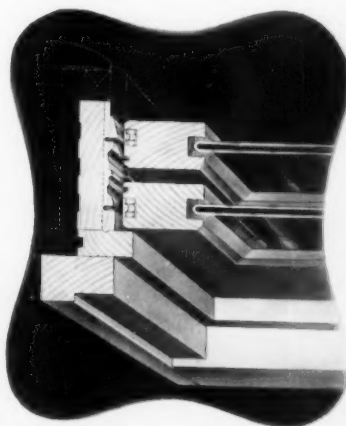
...provide custom luxury features
for your homes without custom cost

For ultimate design flexibility specify

BILT-WELL
WOOD WORK

by **Caradco**

Thermal glass
set in vinyl gasket



**The First Engineered
Double-Hung Window
with Insulating Glass
Distributed Nationally**

The Super-Therm by BILT-WELL employs an entirely new concept in glazing. The insulating glass is set in a vinyl gasket that provides maximum weather protection and cushions the glass against cracking or breaking. Super-Therm is the prestige* window that provides the ultimate in comfort with minimum heating and cooling costs and eliminates the inconvenience and unsightly appearance of storm sash.

*Parts interchangeable with BILT-WELL Super-Hold and Super-Lift window units. Ask your supplier for details.

Look for these BILT-WELL features:

1. Unitized Construction
2. Patented BILT-WELL vertical weatherstripping
3. Gasket type vinyl horizontal weatherstripping
4. Fully removable
5. Perfectly counter-balanced
6. Surpasses F.H.A. minimum standards

The BILT-WELL Line of Building Woodwork—WINDOW UNITS, Double-hung, Awning, Casement, Basement. CABINETS, Kitchen, Multiple-use, Wardrobe, Storage, Vanity-Lavatory. DOORS, Exterior, Interior, Screen and Combination.

CARADCO, INC., Dubuque, Iowa

MAHON M-FLOORS

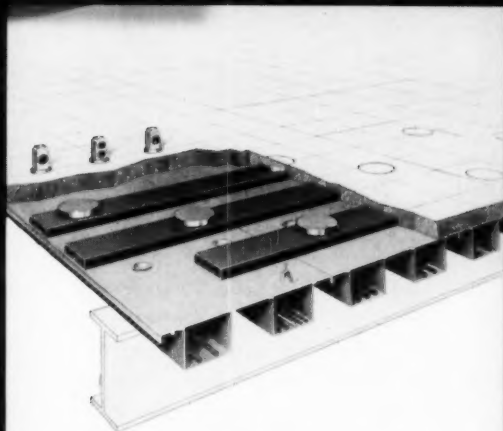
VERSATILE
STEEL CELLULAR SUB-FLOOR
STRUCTURAL SECTIONS

**have a built-in future
for electrification**

**—a proven past
for cost savings**

Forward-looking construction—functional today . . . adequate tomorrow. Mahon M-Floors are an important component of the First National Bank Bldg., Minneapolis. Architects and Engineers: Holabird & Root & Burgee, Chicago. Associate Architects: Thorshov & Cerny, Inc., Minneapolis. General Contractor: Naugle-Leck, Inc., Minneapolis.

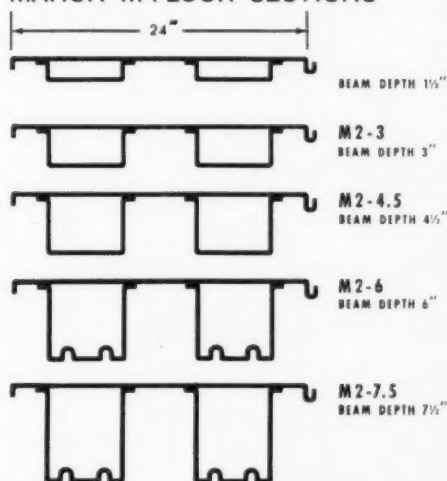




Sectional view of typical M-Floor construction:
This electrified steel cellular floor, using
M2-4.5 sections, is energized from a
three-header duct electrical distribution
system. M-Floor installation is easy—
electrical wiring is quick.

Mahon M-Floors offer the architect and engineer economical structural advantages and easy electrical servicing of every square foot of floor space . . . give the client an ideal steel sub-floor and a raceway capacity that will not be outmoded by future electrical demands. Lightweight, high-strength steel cellular M-Floor sections are precision made by Mahon in various depths, gages and gage combinations to meet your design requirements . . . savings on foundations, installation time, construction convenience are dividends. Any type of floor covering can be used over the concrete fill . . . standard service fittings can be located wherever they are needed. To find out what versatile M-floors can do for you . . . your applications . . . your project costs . . . contact your local Mahon architectural representative, write for descriptive Catalog M-60 or see Sweet's Files.

MAHON M-FLOOR SECTIONS



MAHON BUILDING PRODUCTS

- Aluminum or Steel Curtain Wall (natural or colored metals)
- Rolling Steel Doors (Standard or Underwriters' labeled)
- Metalclad Fire Walls (Underwriters' rated)
- M-Floors (Steel Cellular Sub-Floors)
- Long Span M-Deck (Cellular or Open Beam)
- Steel Roof Deck
- Acoustical and Troffer Forms
- Acoustical Metal Walls, Partitions, and Roof Deck
- Permanent Concrete Floor Forms

CONSTRUCTION SERVICES

- Structural Steel—Fabrication and Erection
- Steel Fabrication—Weldments

THE R. C. MAHON COMPANY *Detroit 34, Michigan*

Manufacturing Plants—Detroit, Michigan and Los Angeles, California
Sales-Engineering Offices in Detroit, New York, Chicago,
Los Angeles and San Francisco
Representatives in all principal cities.

SPEEDING AMERICAN CONSTRUCTION WITH METAL BUILDING PRODUCTS,
FABRICATED EQUIPMENT AND ERECTION SERVICES.

MAHON



Age Only **Deepens**

THE BEAUTY of this PROTECTED FLOOR

SUPER ONEX-SEAL® seals out dirt, moisture and traffic wear, gives a lustrous, three-dimensional look to the floor surface. Friction of feet tends to deepen the lustre, an effect similar to that of hand-rubbed hardwood. Enhances the natural colors of terrazzo. Outdoors too, on store entrances, patios, shuffleboard courts or dance floors, Super Onex-Seal holds the beauty of the smooth protected surface.

A SUPER ONEX-SEAL surface is hard, smooth, firm. It is the penetrating type seal recommended by leading terrazzo contractors. Alkaline salts are sealed in so that the problem of dusting is eliminated. "Terrazzo should not be waxed." - Bulletin of Nat'l Terrazzo & Mosaic Assn. Sealed floor needs only minimum maintenance to keep clean and sparkling.



listed for slip resistance.



Write for FREE Hillyard A.I.A. Numbered Files—practical treating guides, one for each type of flooring.



Let the Hillyard "Maintaineer®" offer you advice on floor clean-up and initial treatment. He'll also serve as your Job Captain,
"On Your Staff. Not Your Payroll."

WHETHER TERRAZZO, WOOD, CONCRETE, CERAMIC TILE or RESILIENT FLOORS



H I L L Y A R D
Pascag M. J. ST. JOSEPH, MO. San Jose, Calif.
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You'll Finish Ahead
with

HILLYARD

Branches and Warehouse Stocks in Principal Cities

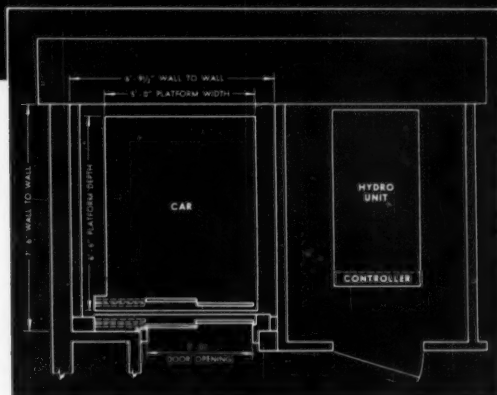


MAYTAG HEADQUARTERS BUILDING, NEWTON, IOWA
BROOKS-BORG, ARCHITECTS, DES MOINES, IOWA

... In MAYTAG new Headquarters Building

To achieve maximum efficiency in vertical transportation and the utmost in space utilization, the architects for this modern Maytag office building, planned its transportation facilities at the hub of the work area.

Here dependable Montgomery Elevators of the latest operatorless design will be easily and quickly accessible to efficiently serve the needs of all surrounding office personnel.



For your next commission requiring vertical transportation, investigate the elevator equipment that is designed and built by craftsmen who are traditionally dedicated to producing the finest in elevator workmanship — Montgomery.



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offices in principal cities

MONTGOMERY ESCALATORS — STEPHENS-ADAMSON "SPEEDWALKS" AND "SPEEDRAMPS"

Exclusive Manufacturers of Passenger and Freight Elevators Since 1892

CRANE

DIRECTION '70



THE FAIRFAX Designed by Henry Dreyfuss

Crane quality—a Dreyfuss design—yet priced in the medium range. The floor to top height of the Fairfax is only 14", for easy entry and exit... a full two inches lower than most baths. Available in regular or acid-resisting porcelain enameled cast iron. Trim is exclusive Crane *Dial-ese*. You can specify the Fairfax in any of the full range of Crane colors and white.

The Crane Fairfax—Length: 5'; Width: 30"; Seating Edge Width: 5"; Height: 14"

New Crane *Star*Lite* Accessories and Fairfax Bath are available through your Crane Distributor who also has a complete line of Crane quality plumbing ware for every installation. Call him for full facts on these new Crane products.

Announcing
CRANE
*Star*lite*
Bathroom
Accessories

Beautifully designed
with polished chrome
plating...Solidly Built...
Moderately Priced...
Easily Installed.
Metal accessories
are preferred by over
half your clients

**IMPORTANT NEW DEVELOPMENTS FROM CRANE
TO MEET THE CHALLENGE OF THE SOARING SIXTIES**

The Soaring Sixties have begun. This is predicted to be the biggest decade for America's biggest industry—building—and everyone associated with it.

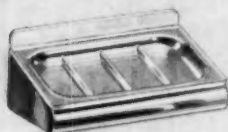
There's the booming population growth—a 34 million net gain, or a 16% increase.

There will be more households. We need homes and schools and hospitals—and buildings of all kinds. We have to provide new construction for the newcomers...

and also to replace those made obsolete.

Crane announces Direction '70... to help you meet the challenge of the Soaring Sixties. These are products to improve building quality. These are products to increase efficiency. These are products to help curb rising costs.

On these pages are the first of these new Crane developments... the first of many you'll be seeing in Crane's Direction '70.



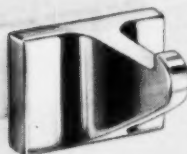
2-900 Soap Holder with Plastic Tray



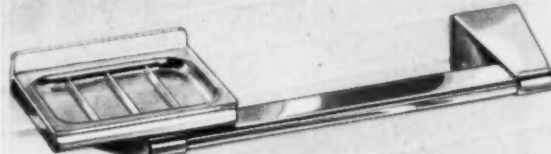
2-902 Tumbler and Toothbrush Holder



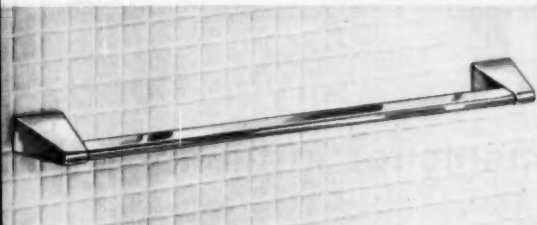
2-904 Paper Holder with Metal Roller



2-910 Robe Hook



2-906 Soap Holder and Grab Bar with oval-shaped Metal Bar and Plastic Tray



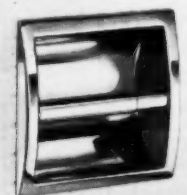
2-908 Towel Bar—in lengths of 18", 24" and 30"



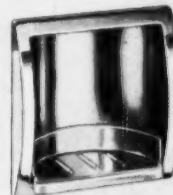
Cross-section of bar shows unique oval shape. This provides greater separation for faster drying. Gives unit a distinctive modern appearance.

RECESS ACCESSORIES

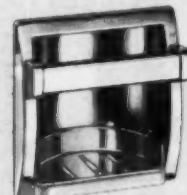
Overall Size: $6\frac{1}{8}" \times 6\frac{1}{4}"$.
Wall Opening: $5\frac{1}{4}" \times 5\frac{1}{4}" \times 2\frac{1}{4}"$.
Recess Accessories are regularly furnished for wood screw installation.



2-915 Paper Holder with Metal Roller



2-917 Soap Holder with Plastic Tray



2-919 Soap Holder and Grab Bar with Plastic Tray

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*Jamison Series "50" FS
Walk-In Cooler Door*



*Jamison Lo-Temp FS
Walk-In Freezer Door*

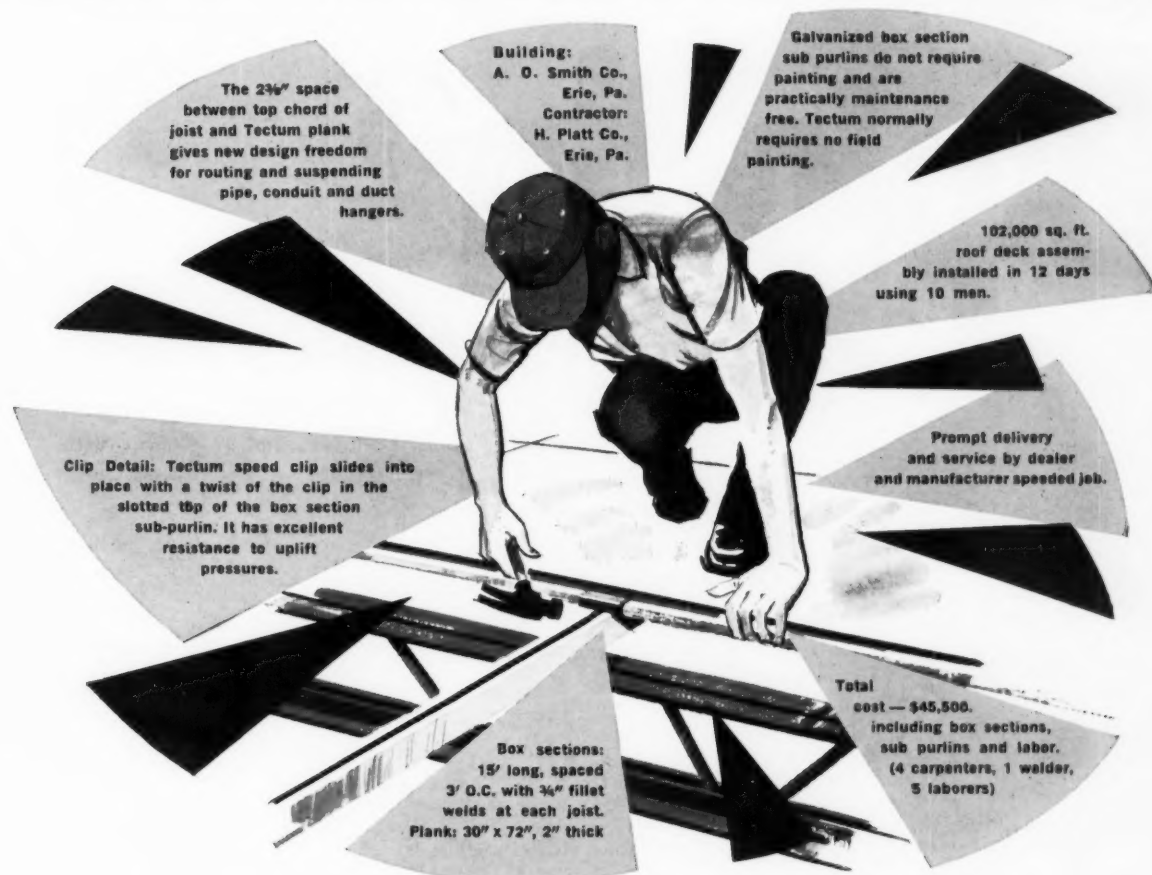
For gleaming, sanitary appearance, easy cleaning, minimum maintenance, Jamison Food Service (FS) Doors deliver top performance with year-after-year economy.

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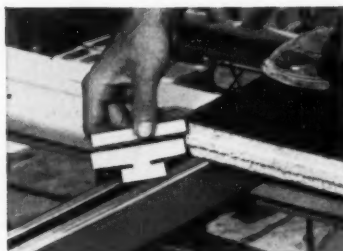
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Mechanical clips afford positive anchorage and high resistance to uplift pressures. Speeds erection and prevents thermal transfer.

The outstanding features listed above were typical of the statements from the well known Erie, Pennsylvania, contracting firm of H. Platt Co. This was their first experience with the new Tectum Box Section Roof Deck Assembly. In addition to the savings reported in construction time and materials, this type of roof deck gives extra ceiling height. The deck also furnishes continuous beam strength in both Tectum plank and box section sub purlins.

Small wonder this new concept is attracting architect and contractor interest everywhere. For the complete story, as editorialized in *Building Construction Illustrated*, March issue, send for a reprint of the article. We'll be happy to see that you receive your copy, immediately.

TECTUM CORPORATION, 535 East Broad Street, Columbus 15, Ohio

THERE'S A MATERIAL DIFFERENCE IN TECTUM



Exploding

a popular misconception

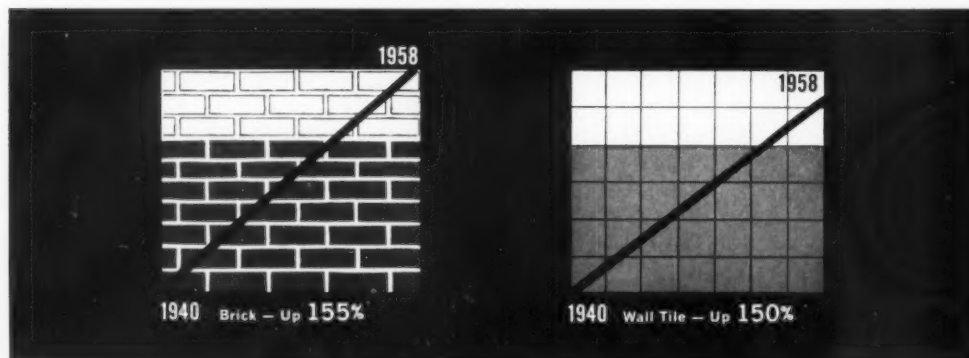
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You, of course, know better. Glass is not expensive, just looks it. In fact, with glass you are specifying a building product that has been least affected by spiraling building costs.

Increases in building-material costs show some marked differences from 1940 to 1958. For example:

Brick	up 155%	Structural Steel	up 187%
Wall Tile	up 150%	Window Glass	up 54%
Plate Glass	up 76%		

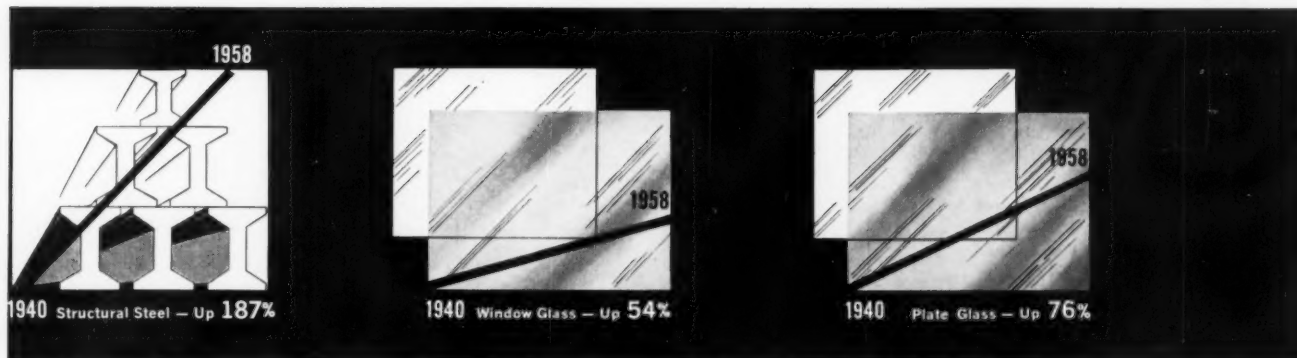
Source: U. S. Bureau of Labor Statistics. (Exception — costs for plate glass, 1940 to 1958, based on company records of wholesale prices.)



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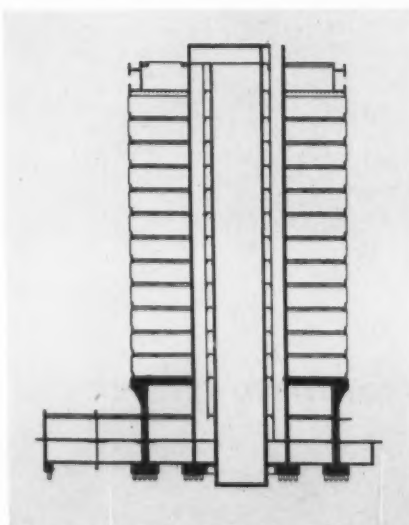
Unusual design for resisting seismic forces incorporates Penmetal lath



JOHN HANCOCK BUILDING

ARCHITECTS: Skidmore, Owings & Merrill
GENERAL CONTRACTOR: Cahill Bros., Inc.
PLASTERING: Frederick Meiswinkel, Inc.
LATHING: Roy Healy Lathing Co.
MATERIALS: San Francisco Gravel Co.
PENMETAL STRUCTURAL FRAMING
DISTRIBUTOR: Taylor Products Corp.

This diagram shows the unusual structural concept employed by the designers.

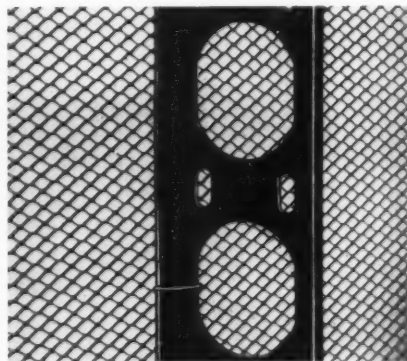


In the new John Hancock Insurance Company building in San Francisco, loads from exterior bearing walls are transmitted to setback columns by haunched concrete arches. Seismic and wind loads are distributed into the walls of the central core by the third floor, which acts as a stiff diaphragm.

Further to insure the building's shock integrity, the interior was finished wherever possible with plaster over Penmetal lath. This combination of metal lath and plaster has proved, time and again, to be the most resistant to cracks and crumbling even during earthquakes. Its strength stems from an inseparable key between the plaster and the steel mesh, giving walls or ceilings the characteristics of a solid slab of stone.

Penmetal partition studs, metal lath, beads and casings were used in the central core enclosing elevators and stairways. Because of their height, studs of Penmetal Structural Steel Framing, also with metal lath and plaster, were used to form the partitions for the mechanical floor at the top of the building.

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ARCHITECTURAL GRAPHICS

The first big feature article on architectural graphics in the American architectural press (Signs and Symbols, ARCHITECTURAL RECORD, Sept., 1956), excited unusual interest and an unprecedented demand for reprints. Thus, we take another look at this subject.

In designing a sign which informs or locates or directs or promotes, the architect faces a design opportunity that is worth more than secondary consideration. Interesting shapes, colors, textures, materials, or chiaroscuro patterns can be introduced to enliven—by contrast—the severity and modular regularity of much contemporary work. As architecture brings together with sympathy and taste the arts and sciences in its conception, it will gain validity as a total expression.

LETTER FORMS ON ARCHITECTURE

by Norman Ives *

In the cityscapes about us, letter forms are very much in evidence in posters, traffic signs, street signs, shop windows, on buildings, and in all of the extraneous informational, directional, and persuasive signs that distract the eye. Graphic design is ubiquitous, and becomes an ever increasing responsibility of the designer. At night, there is a short-lived beauty in the conglomeration of signs—which suggests the beauty of a circus or amusement park—but upon closer scrutiny it becomes less attractive and more of an eyesore. Unlike a circus, it is here to stay. The jumble of letters and forms competing for attention is more apparent in daytime, when the confusion of architecture is added.

The responsibility for resolving this visual dilemma is the architect's. There are two ways for him to solve the problem of putting letters on buildings. One is to do it himself—the other is to consult with a graphic designer. In the first instance, a good solution might result; in the second, a good solution is more likely. There is no standard approach which would cover all cases. However, there are several possible directions. Most architects like the idea of a *separate* sign, such as a pylon, as far away from the building as possible. Depending on conditions, this might be a happy solution, since architects seldom think of letters as part of a building. The sign is too often treated as an afterthought. When the client demands more consideration for the letters, the best course is to call in a graphic designer as consultant. It is now too late for the designer to solve the problem in terms of the architecture, so both must adjust their ideals and compromise. Usually, the letters must be placed on the building. So, the architect must redesign the building (or that particular façade) to accommodate the lettering, or both the building and the lettering will be ineffectual by everyone's stand-



2

This simplified sans-serif (1) complements the geometry of the building, but fails to relay its message clearly. The letter forms give the impression of weather stains at the lower edge of the façade. Example 2 is typical of the letter forms revived from the 19th century—fashionable in the 50's. The overly individual character of the Egyptian ex-

tended letter sharply limits its use. This particular example appears to be enlarged from a type face. The hazards of a southern exposure are apparent in the next example (3). Here, the sun creates a new configuration which, because of the minimum color boundary between the surface of the letters and the façade of the building, makes the

* Mr. Ives is Assistant Professor of Graphic Design in the School of Art and Architecture at Yale, and also does graphic design work for various architects. He has written the caption comments on these and the following five pages, and has made the layouts for this eight page section.

ards. The ideal solution is for the architect to consult a graphic designer during the conception of his design. With an understanding of the architect's approach, the graphic designer can suggest a direction to the solution that need not compromise either himself or the architect.

Without the help of one who understands and works with letter forms, the architect can make many mistakes when he attempts a solution on his own. The usual approach is to treat letter forms as elements of the building, along with the brick or glass or some other modular or ornamental material. If letter forms become merely an element of the structure, they fail to communicate their message, which is their first function. This is often caused by the use of geometrically exaggerated and over-simplified letters which would be difficult to read even on a printed page. These are the geometric sans-serif letter forms that played such an important role in the architecture of the 20's and 30's and can apparently never escape that context. The more geometric letters become, the less readable they are in a word configuration. Letters are symbols; and each should retain its own identity for maximum legibility. There can be no rules about which letter forms should be used on buildings, because each situation is different.

The most successful solutions to the problem have been those in which the letter forms have been used in *contrast* to the building in scale, color, and texture—or by giving the illusion of being on a separate plane from the surface of the building. Such letters retain their individuality and their own vitality in much the same way that a good building is related to, yet separate from its site and surroundings. Obviously, it would be ideal if the architect could solve the problem of signs himself, but graphic design requires special knowledge and skills that he could hardly hope to possess. The wise architect will consult with a graphic designer.

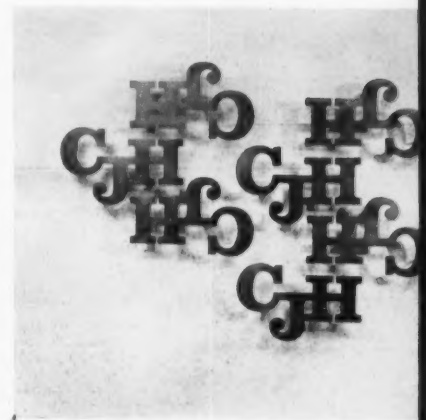
The new shopping centers that are springing up in suburban areas give evidence of a serious attempt to integrate graphic design with highway and building. Another significant and exciting example which can be a lesson to the architect and graphic designer is Brasilia. Here the graphic design for the streets and buildings is being planned in relation to the total effect of the city, and the result should be attractive indeed.

shadows more noticeable than the letters, and makes the letters difficult to read. In figure 4, the letter forms are used as a symbol, so that legibility is not a prime concern. The pattern of the symbolic decoration is raised from the plane of the wall so that the shadows complement and enhance the total effect.

Illustrations: 1. Guggenheim



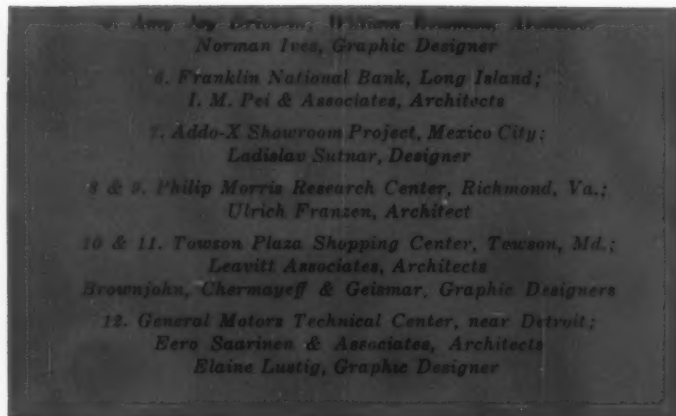
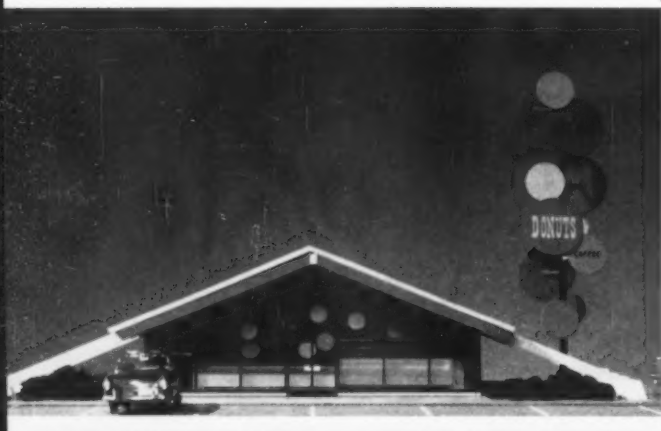
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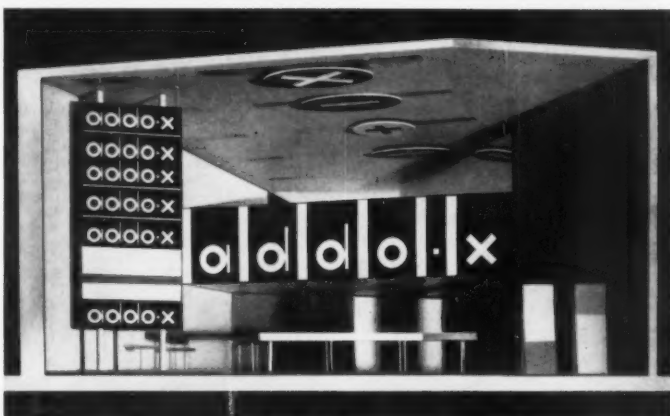
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Museum—Frank Lloyd Wright, Architect; 2. Chandlers Store, New York—John Graham & Co., Architects; 3. Susan Sheridan High School, New Haven, Conn.—Pederson & Tilney, Architects; 4. Typographic Sculpture, School in Greenwich, Conn.—Sherwood, Mills & Smith, Architects—Brownjohn, Chermayeff & Geismar, Graphic Designers

5



6 7



These pictures show examples of identification signs that are separated from the building. A variety of solutions is possible. In example (5), the circles of the exterior pylon contrast with and emphasize the simple triangle of the architecture, and relate also to the interior circular signs over

the counter. In example (6), there is sufficient free area about the bank so that the sign could be made a free-standing element. Any addition to the façade would have spoiled it. The delicacy of the Clarendon letters is scarcely enhanced by making their color value almost equivalent to the

value of the surface upon which they are placed. In example (7), the sign is kept away from the façade by locating it inside the building, the object being—according to the designer—"to gain the attention of the passing motorist and at the same time to appear attractive to visitors entering

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from the rear, while combating building regulations against exterior and window signs." The Philip Morris signs (8 and 9) form part of a group that stretches along a highway to make a visual introduction to the building—as opposed to neighboring plants, which employ such devices as

giant packages of cigarettes on stilts for the same purpose. The Towson Plaza pylon (10) employs a T symbol in clever fashion, although the letters cast shadows which tend to make them fill up and impair their readability. In the entrance sign (11) for the same project, legibility is vastly

improved by the simple device of painting the letters directly on the surface of the sign. The dark background also increases readability. In example (12), the dark value of shrubs and buildings combines with the dark sign background to make the white letters legible

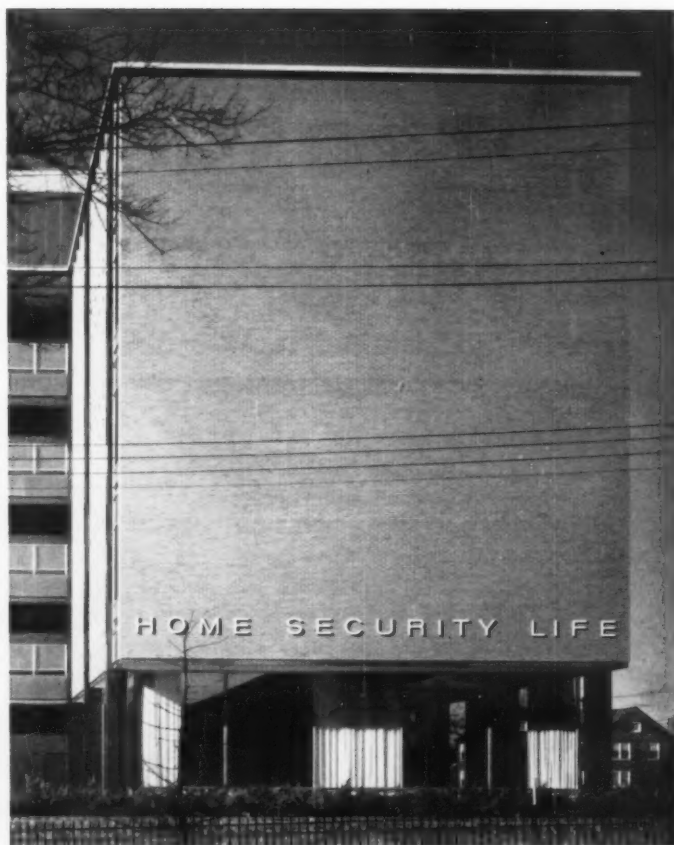
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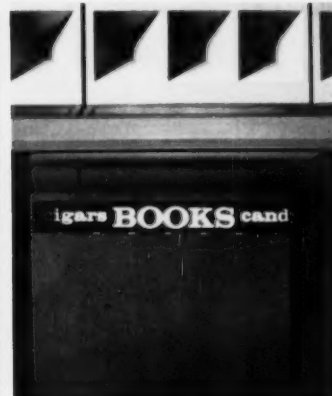
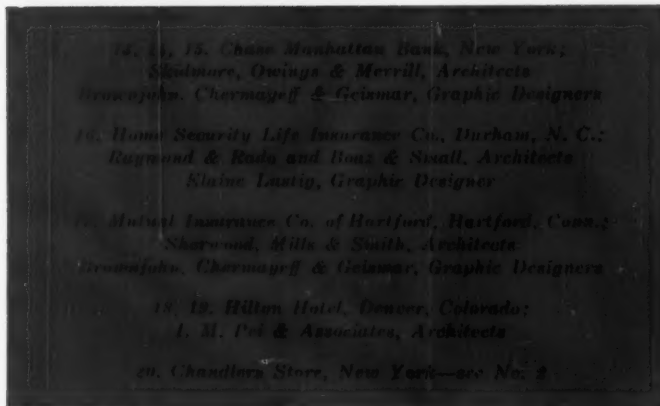
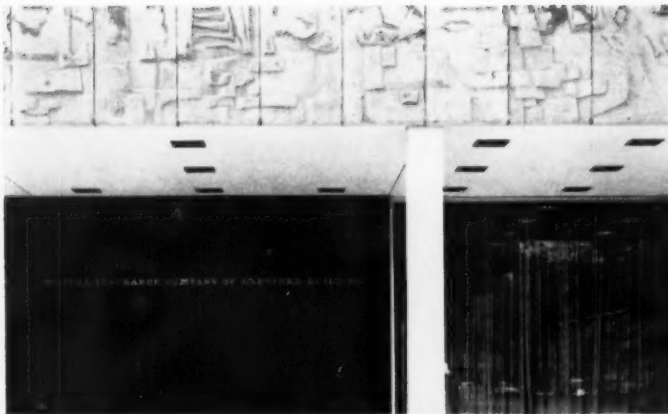


There are restrictions as well as challenges in putting letter forms on buildings. The elegant letter form used in examples (13), (14) and (15) seems appropriate both to modern architecture and to a bank. In (15), the use of white letters within a black band gives emphasis to the feeling of

an entrance; and the black letters used inside the building (14), communicate their message in a less formal, though effective, way. The exterior sign on glass (13) is a less happy result; the flush left treatment has little to do with the other letter treatment of the architecture.

Example (16) illustrates a good use of shadow to improve legibility; by employing a light value on the surface of the letters, the resulting shadows emphasize their configuration rather than serving to make them illegible as in (10) and (3). The placement of the letters gives vitality and

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scale to an otherwise unadorned brick façade. In example (17), the letters identify the building adequately and do not fight with the busy façade treatment. By separating the letters in value from their background, the letters appear to float on a different plane. The vertical stress of the win-

dow façade (18) makes the condensed letter form appropriate to this situation. The placement of the letters appears natural and planned; this particular part of the structure would seem empty without them. Interiors usually have an over-all dark atmosphere, especially when seen from a

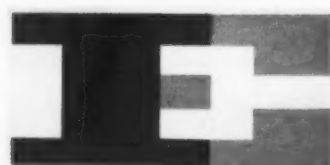
sunny sidewalk; in examples (19) and (20), (19) is a more successful solution, because the white letters are played effectively against the dark values, with space surrounding them. In (20), despite the white background strip, the letters fail to overcome the busy interior



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24

21. *Maison du Brésil, Cité Universitaire, Paris;*
Le Corbusier, Architect and Designer

22, 25. *Ken's Restaurant, Boston;*
William Reizman, Architect
Norman Ives, Graphic Designer

23. *Brentwood Shopping Center, Vancouver, B. C.;*
I. M. Pei & Associates, Architects

24. *Symbol for Industrial Engineering Co., New York;*
I. M. Pei & Associates, Architects



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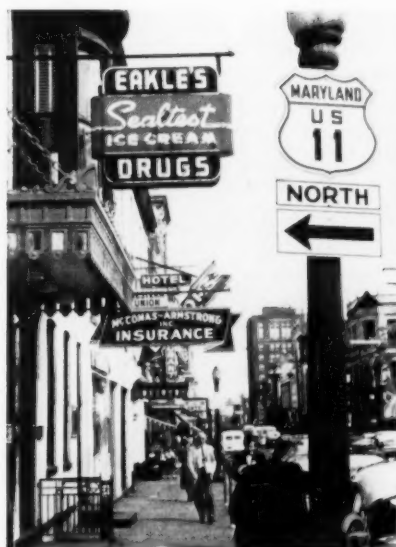
The use of a symbol in connection with architecture is in many ways easier than a line of lettering. The symbol creates its own, self-contained identity; while letters create a horizontal line strongly suggestive of an architectural element. The Brentwood (23) and IE (24) symbols are sufficiently strong configurations that further identification would be unnecessary on a building.

In example (22), the K symbol is used at the entrance; while in (25), the same K in one color is multiplied to create an over-all wall decoration.

Corbu's identification sign (21) takes the form of a mural and covers a complete section of the dormitory building. The colors, informal lettering, and country symbol have a vitality and sprightliness often lacking in architectural lettering, which seems—in many cases—to take itself a bit too seriously.

Photo credits: 4, 10, 17, Len Gittleman; 5, 22, 25, George M. Cushing, Jr.; 6, 13, 14, 15, © Ezra Stoller; 8, 9, George Cserna; 16, Joseph W. Molitor

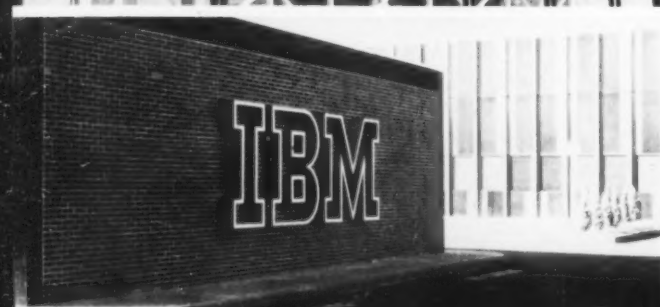
Study for an IBM Sign Design Program



For several years the visual aspect of the IBM corporate image has been subject to considerable study under the general direction of architect and industrial designer Eliot Noyes, acting as consultant for the company. He has designed new products and several buildings; has recommended other architects for various plants and buildings; has brought in graphics designer Paul Rand for an extensive program involving building and property signs, machine signs, and the design for a great deal of printed material.

In the interest of a consistent and recognizable visual identity for the company, Noyes and Rand—after considerable study—have come up with a program for standardizing building and property signs for all locations. The company is now considering these recommendations.

The following 52 illustrations—all photographed by Eliot Noyes—were made from a group of slides selected from the 150 the architect uses for a talk he has given to various IBM groups. Recommended details for sign construction, lettering, and spacing are shown on the last page.



A SIGN STUDY FOR IBM

by Eliot Noyes

The visual clutter in which we live is aggravated on typical U.S. city streets and elsewhere by signs—thousands of them—each trying to be individual and shout down its neighbors—with the curiously self-defeating result in this typical example, Hagerstown, Md. (1). Because of the babel of messages transmitted, no single message is clearly received, and our nerves are badly frayed. How agreeably different is this similar shopping street in Winchester, England (2)

It seemed to us that a corporation would do well to look to the signs it uses and consider these points:

- In signs using the company name is the corporation clearly and consistently identified?
- Are signs used intelligently in relation to buildings as elements of architecture?
- Are other company signs being handled consistently as to text (message) and symbols (arrows, etc.)? As to structure, color, type faces?
- Do all signs represent and, in a sense, identify the company through their design?
- Does the sign program appear dignified and acceptable to the outside world, or is it adding to the general visual clutter and confusion?
- Are there economies to be found?

We have recently been conducting a study for IBM to answer these questions. The signs we found as we began were probably neither better nor worse than those of most companies. Our study led to a design program for signs which IBM is considering as a company standard.

IBM buildings usually have the company name on them. All too rarely has the sign been considered as an element of the architecture—and a prominent element at that. In the past, a rather routine factory design such as at Kingston, N. Y. (3), ended with giant letters mounted over a



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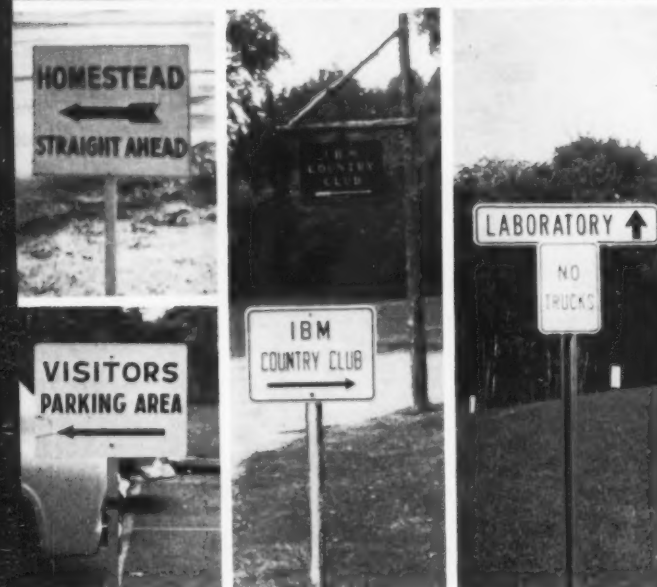
large central entrance element, looking like an architectural afterthought, and with their supporting structure embarrassingly apparent. One is not supposed to notice the struts—just the sign.

We are now urging architects to consider the IBM sign as a part of the building, and to incorporate it in the design. This is not always easy. On the IBM building in Los Angeles (4), the slabs with the IBM letters on them are related to the sun-shade module; but the varying width of the letters IBM make this only partially successful. This is a long step ahead of the Kingston approach, however.

It is clear that each building calls for a special solution. Note these good examples: IBM on building at 57th Street, New York City (5), IBM on Brussels Fair building (6), IBM on Rochester, Minn. Plant (7).

Another rather elegant way of handling the same problem is shown in Breuer's Van Leer building near Amsterdam (8). Here, the sign is a free standing illuminated construction.

In looking at other kinds of IBM signs, we found very little consistency of approach from plant to plant, and a rather wide diversity of character at individual locations, because of the lack of any standardized approach. Sign structures were extremely varied (9), though in cases individually acceptable.



The method of indicating direction was non-standard to the point of confusion. Arrows were of all sizes and shapes, sometimes with lettering superimposed on them; or surrounded with other information; or belying the verbal message—and so on (10). The use of standard traffic sign materials and structure can at least provide a kind of uniformity, even though such signs are not particularly attractive. It is all too easy, even with these tools, to fail to get a message across clearly, however.

For example, are both buildings (11) to the right, or is one of them straight ahead? And if one arrow is enough, are two (12) better? In this case (13), arrows become confused with the lettering, making it harder to read. Arrows pointing up are internationally used and understood to indicate straight ahead, even though they might seem to belong better on this sign (14)

Other problems we noticed were those having to do with variegated type faces, colors, sizes, shapes, materials, etc. All of these factors led at worst to a failure to transmit the message—at best, to a free-wheeling independence. However, it seemed that there were many potential advantages in developing a standardized program of signs for the company. In thinking of the time and effort that had obviously been expended in inventing all these *different* signs, we could see large amounts of money being saved by making the design process *simple* and *standard*.

The goals, (not necessarily in order of importance) :

- 1. clarity of message.
- 2. company identity through standardized appearance at all plants or installations.
- 3. economies of design and sign cost.
- 4. simplified procedures for procurement.
- 5. quality appearance.
- 6. good manners vis-a-vis the rest of the world.

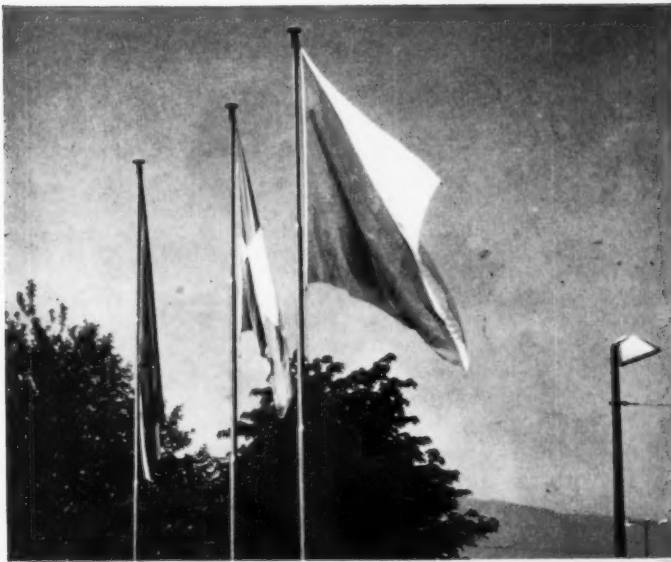
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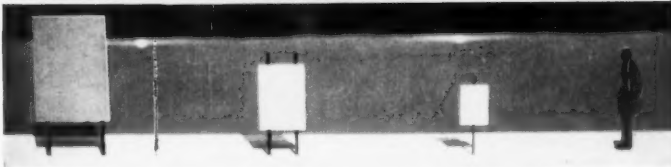
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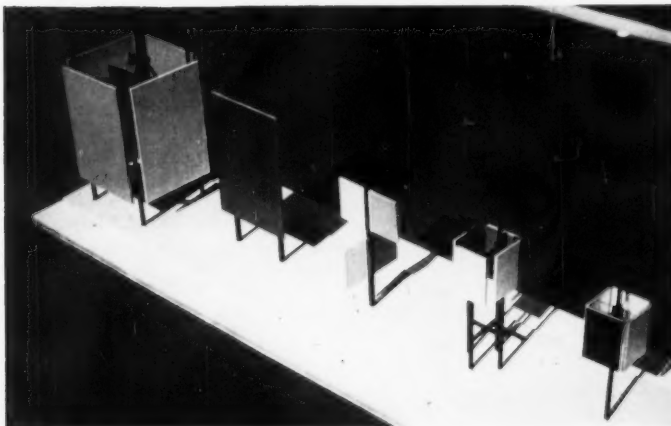
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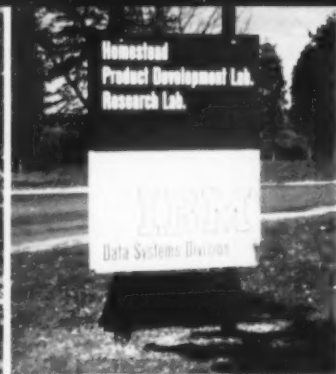
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There seemed to be no reason why a company could not have: 1st, a few sizes and shapes of signs for all needs; 2nd, a simple and standard structural system for all signs; and 3rd, a standard method of sign layout, type faces, and colors.

Working with Paul Rand, we developed a concept for the program. If you want to get attention, you put up a flag (15). We thought initially to use the flag idea in 3 sizes (16). The use of these 3 sizes in different spatial combinations should give us a wide range of possibilities to cover the needs for large to small signs, one- to four-faced signs, and so forth (17)

We first tried this idea on two actual locations,—new IBM buildings which needed signs. The first was at Mohansic (18). The flag concept is expressed in the use of a considerable area of colored background beyond that used by lettering. One approached the building up a flight of steps, so the lettering was kept at the bottom of the sign. At the offices in Poughkeepsie we tried a large, free-standing sign (19)



Encouraged by the effectiveness of the trial signs at Mohansic and Poughkeepsie, we then made a much larger experiment, by taking over an IBM area in Poughkeepsie where we had a large variety of existing signs. These we replaced with new full size mockups, built of wood with silk screened faces, and durable enough to last a while, but not destined to be permanent. We put up about 25 of these, in all sizes, to test out our theories and make it possible to drive and walk through an area completely furnished with this new standard.

Four before and after versions show the general effect resulting (20). The type face Paul Rand had recommended was Standard Medium Condensed, in upper and lower case letters.

abcdefghijklmnopqrstuvwxyz

This letter enabled us to put rather long words in a fairly short space, and we believed it would be thoroughly legible to people driving about 20 mph. As these photographs show, we achieved much of what we were after, but not all.

We learned several lessons. We found that signs with dark letters on white backgrounds (21) were not good when the sun was behind them, because they assumed about the same value as the surrounding grass and were hard to see. We found that the use of white letters on red and blue as background (22) gave us both good legibility and a color code—the blue ones for simple information, the red ones for instructions to do or not to do something (turn, stop, don't park, etc.) Finally, we discovered that our type face was not as legible as we had hoped. We noticed this particularly on the middle-sized signs, and we found that in an approaching car we couldn't read them as soon as we thought we should (23)

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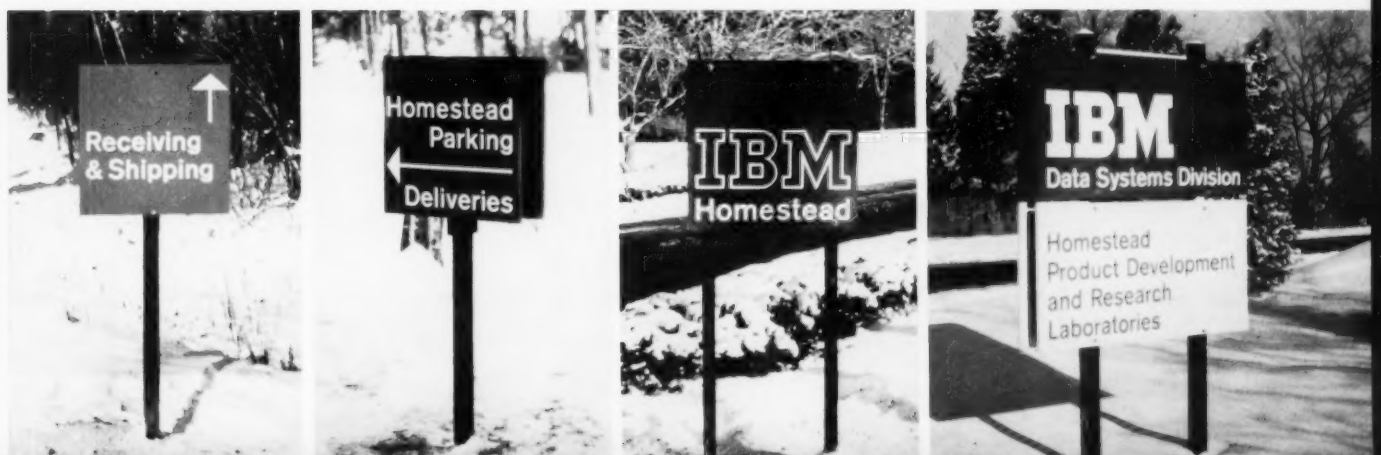
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At this point we took a new look at highway signs, recalling that in Germany on the Autobahns (24), in England on its new high speed road (25), and on many of our U.S. highways (26), Standard Medium (see following page) NOT condensed is the selected type face for signs designed to be legible at really high speeds. This had hardly seemed to be our problem, but if it worked for them it would surely work for us. Testing again at full size with photostats (27), we got a good check on legibility at various distances and speeds of approach, and this led directly to a modification of our design. Our final solution, represented by full-size mockups in place at Poughkeepsie, shows that the new type face led us to a modification in the form of the signs. Instead of a vertical rectangle, we now have a square in four sizes (28). We have codified the manner in which lettering and arrows are used, and have engineered structures in various materials and finishes to produce a standardized appearance. If this is adopted, we shall issue an instruction booklet on the subject to all IBM locations and hope that—as old signs are replaced or new ones needed—the signs on IBM property all over the world will present a clear, dignified, and unified appearance of quality, consistent with the nature and spirit of the company.

28

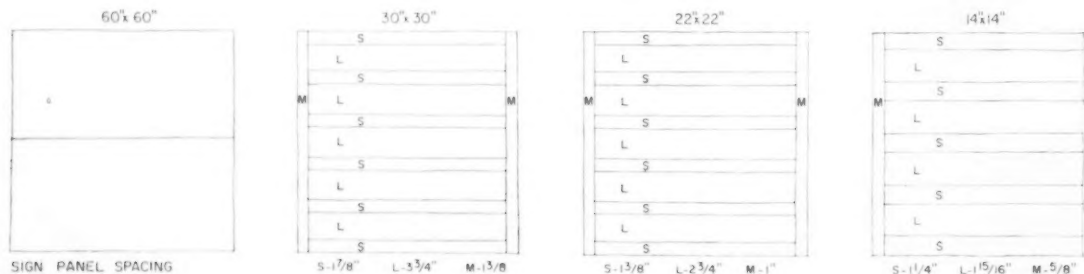
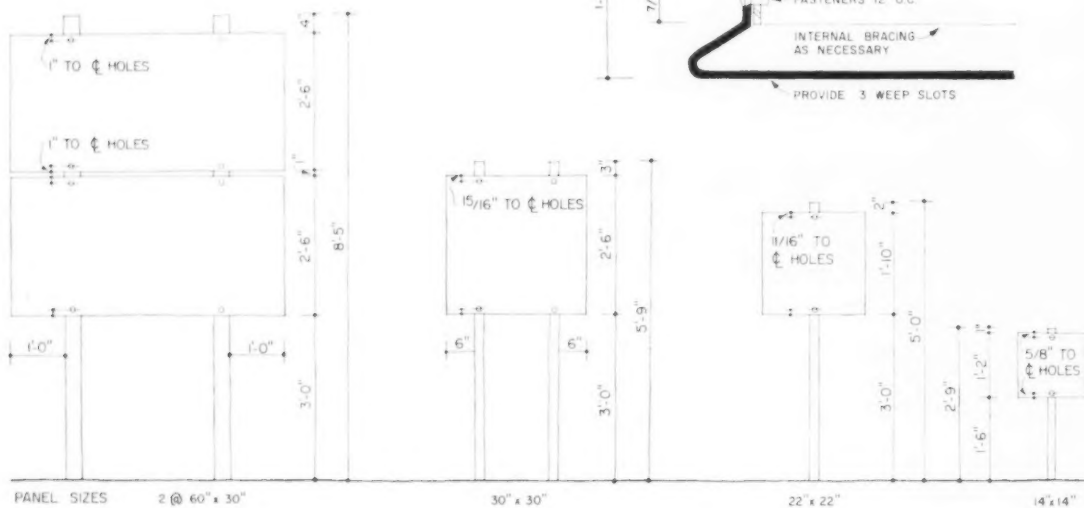


**Diario del Comercio
NOTICIA DE CABLE**

**Motor Exhibition
POWER SUPPLY**

**New products
RADIO TUBES
Gran ponte**

Standard Medium

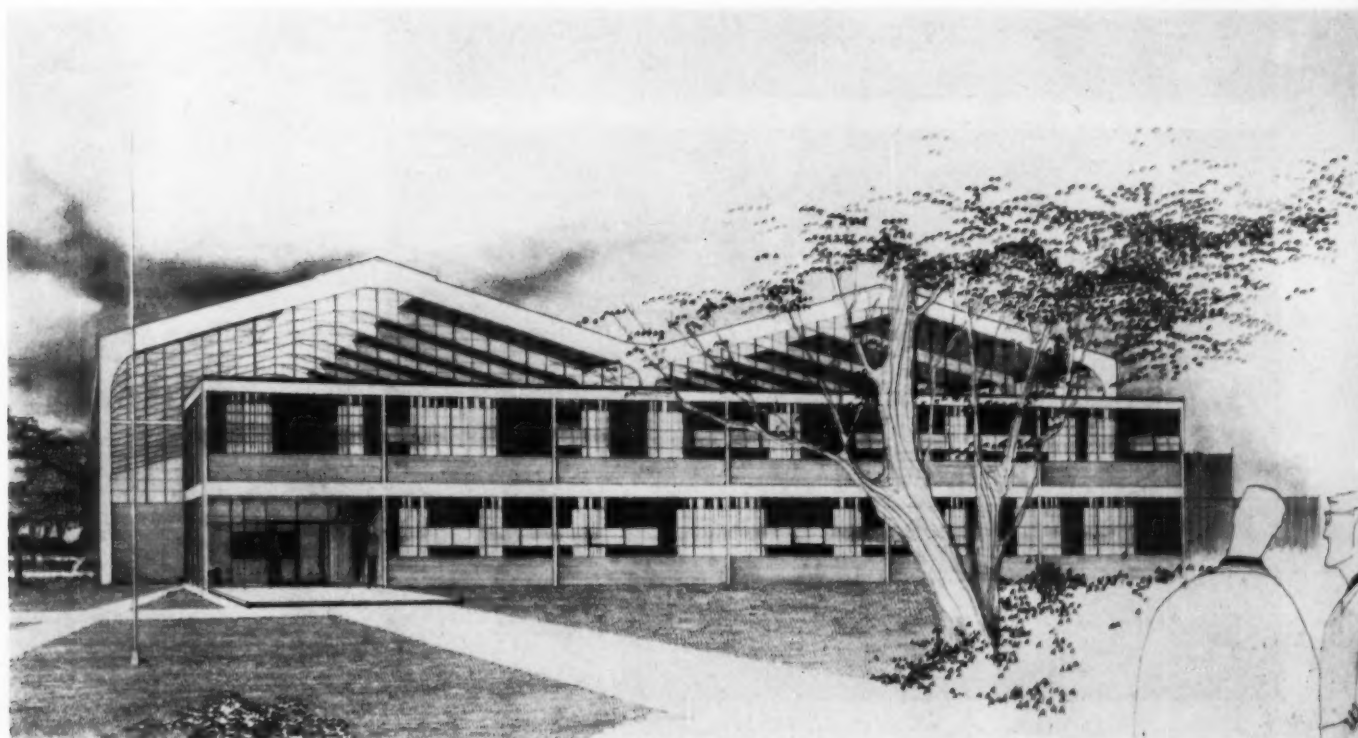


Above are shown the recommended four standard sizes for signs, as well as directions for spacing the lettering, "Standard Medium," enlarged from a type face of that name. Sign

boards would be of wood or porcelain enamel, supported on posts made of standard steel sections. Alternate metal edge details are shown at top right

For ease in handling the large road-building equipment manufactured here, this plant was designed with 70-foot clear-span frames, 35 feet high

RIGID FRAMES FREE PLANT FLOOR AREA



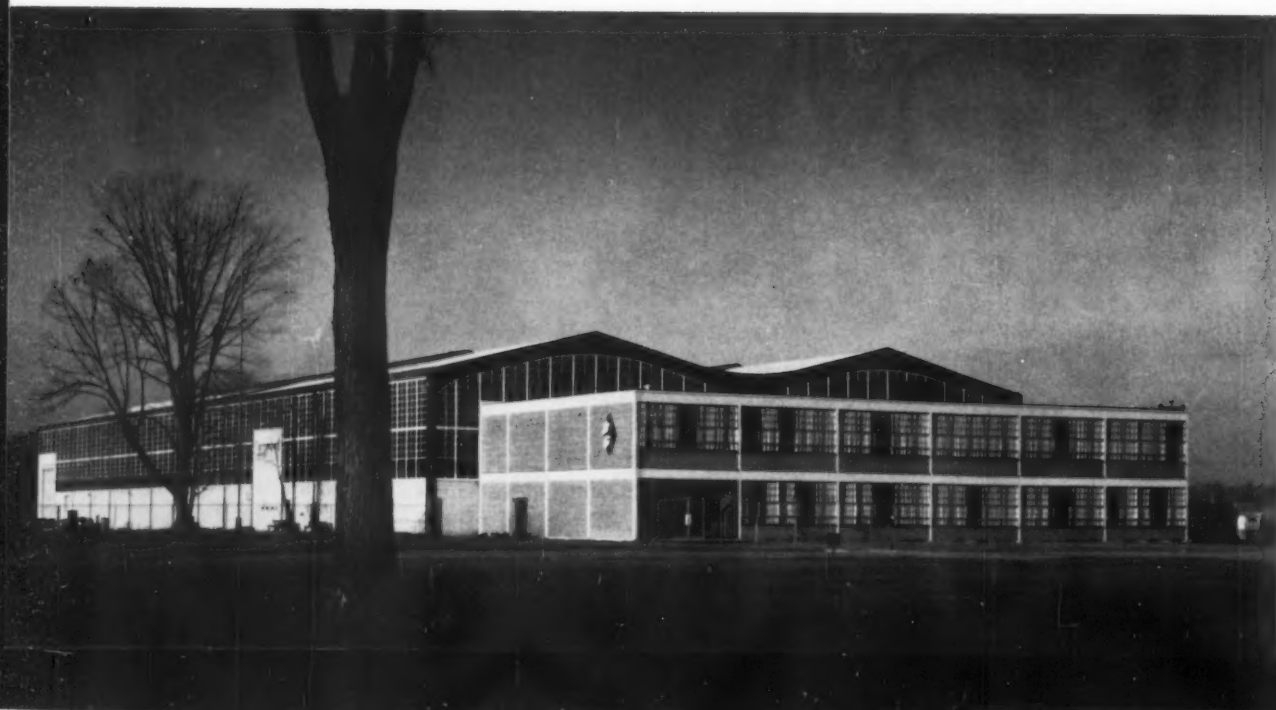
Barber-Greene (Canada) Ltd., Don Mills, Canada; John B. Parkin Associates, Architects and Engineers; John C. Parkin, Partner-in-Charge of Design; J. E. Mews, Assoc., Mechanical Engineering; R. F. Marshall, Associate, Structural Engineering; M. J. Miller, Project Architect; Milne and Nicholls Ltd., Contractors

Complete asphalt processing plants and heavy road-building conveyor equipment are manufactured in this building. The over-all planning and design of the factory are notable for the unobstructed, open character of the interior which allows almost completely free movement of the large components produced. The structure is designed for carrying the loads of two large cranes used to move these components about within the plant.

Considerable care was taken by the architects to integrate the building into the small-town atmosphere of the community. The building itself does not obtrude on its surroundings. Large trees on the site were saved wherever possible. Walkways, parking lot, landscaping, and the building exterior were designed for easy upkeep and maintenance to preserve these original qualities.

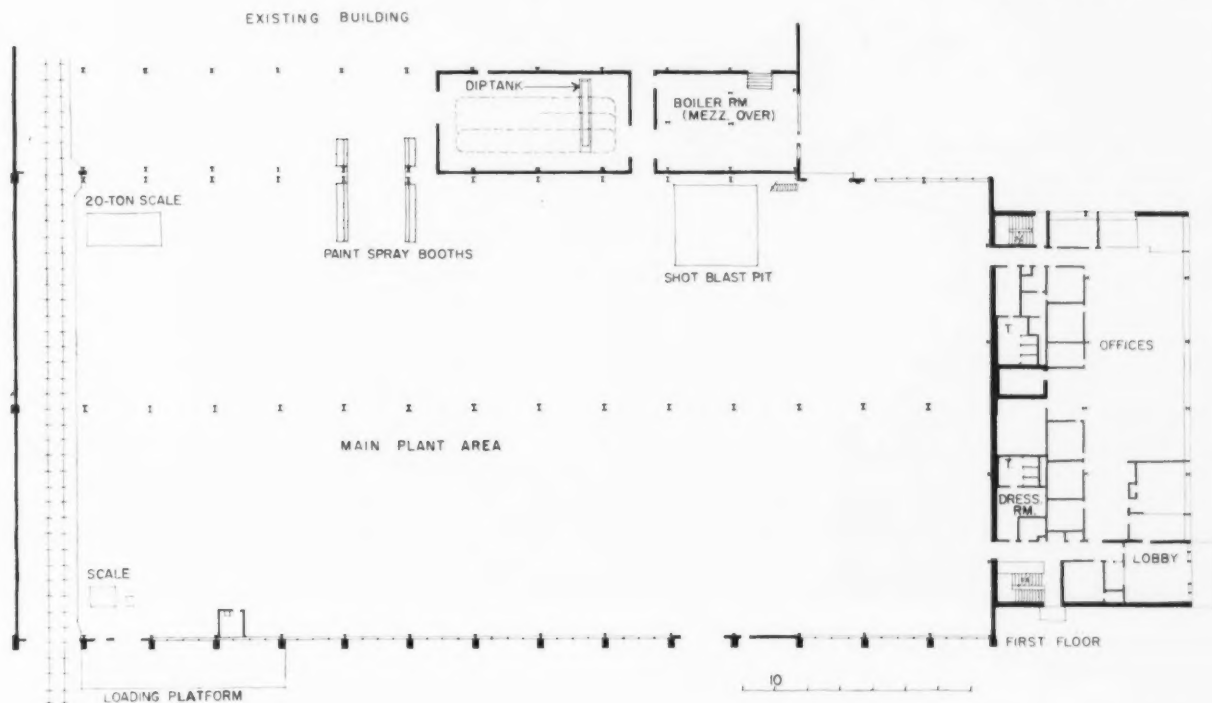


Maz Fleet photos

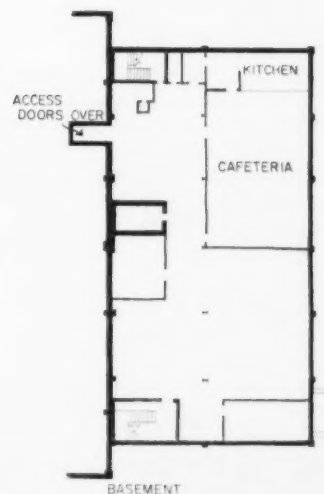
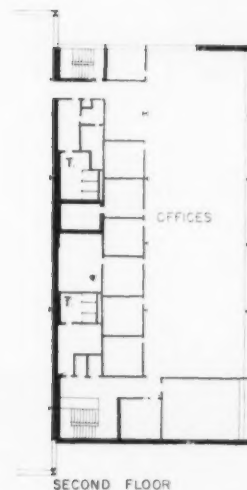


Barber-Greene (Canada) Ltd. Plant

Opposite page, top and bottom: the manufacturing area of the plant is located at the rear of the office wing. The office section is two stories high and has a full basement; the plant wing is one story and has 35-ft clear height inside. Opposite page, middle: the manufacturing wing is constructed with rigid steel frames, allowing free movement of parts and equipment within the area. Frames were designed to support 10-ton and 15-ton cranes used in the manufacturing processes



In order to prevent the noise and vibrations of the manufacturing processes from entering the office area, the two wings were placed on separate foundations. Loading and unloading operations are carried on within the building from the railroad siding which extends into the plant along the rear wall. Large windows are used in both office and plant wings. In the manufacturing area, windows are supplemented by continuous skylights in order to provide maximum daylight



In the first stage of the plant shown here, the emphasis is on development and testing; later stages are to be devoted to expansion of production

PLANT DESIGNED FOR PRODUCT DEVELOPMENT



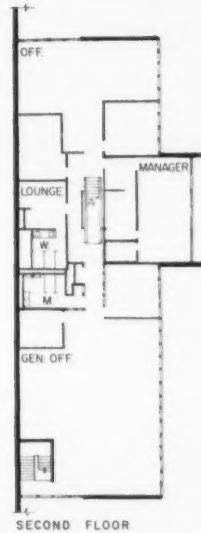
Bill Engdahl, Hedrich-Blessing

Pioneer Saws Div., Outboard Marine Corporation, Waukegan, Ill.; Ralph Stoetzel, Architects-Engineers; Samuel R. Lewis & Assoc., Mechanical Engineers; Campbell-Lowrie-Lautermilch Corp., Contractors

This plant manufactures gasoline-powered chain saws, with two-cycle engines, similar to those used in the company's Evinrude and Johnson outboard motors. The architects of the building have provided a design which permits a considerable amount of development, engineering, and test work to go on concurrently with production. As time goes on, production is expected to occupy a larger proportion of the total plant space. The architects have taken this into consideration in the design, providing for changes within the building to fit later requirements and additions to the building.

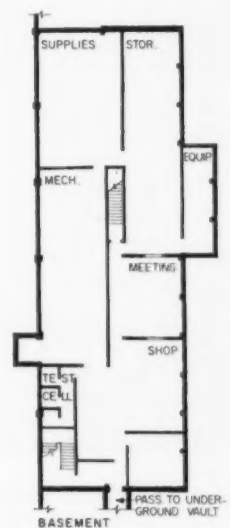
Except for the various test rooms which are expected to remain in their present locations, most major plant areas are flexibly located to allow for change. Movable partitions are used in the plant and in the office area. Heating, cooling, and ventilating distribution systems are located above the ceilings.

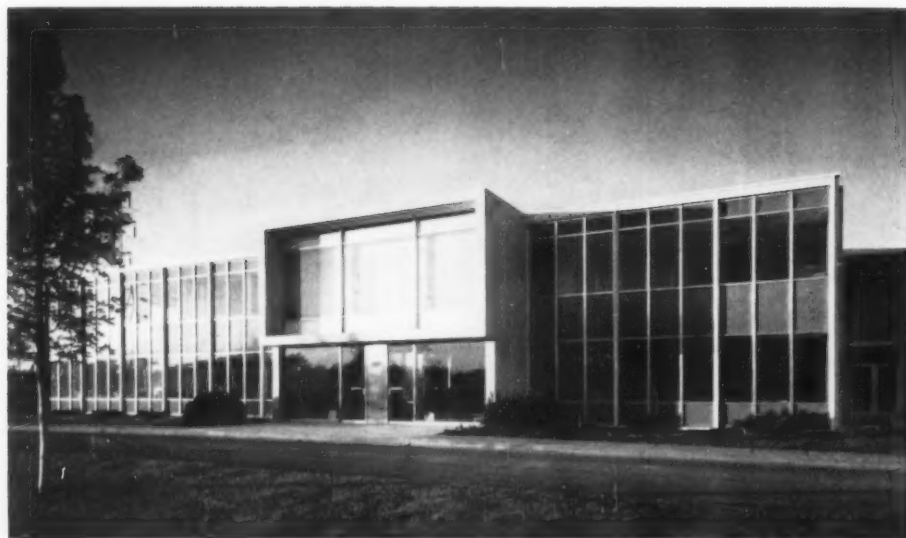
Opposite page: the two-story and basement office wing of the plant is attached to the large manufacturing and development section. The low wing on the left of the main plant contains a lunchroom, wash room, and lockers for the employees. The building structure is steel frame. Portions of the aluminum and glass curtain walls were designed and detailed for removal and re-use when the projected expansion program is put into effect. Other exterior walls are face brick or stone



The plant section of the building is 800 ft long. Approximately one-half of this area, in the center of the building, is devoted to the actual manufacturing processes. The remaining area is almost equally divided between engineering-drafting and development-testing. Design of the building was complicated by the large number of separate rooms required for testing and the need for sound isolation of these areas from adjoining the office and drafting areas

10





Pioneer Saws Division Plant

Above: front view of office wing of plant, showing aluminum and glass curtain walls. The main lobby is located on the first floor in the projecting element, the manager's office directly over the lobby. Right: views show typical materials and treatment of office interiors. Floors are vinyl tile; acoustical tile is used on all office ceilings; partitions between office areas are movable, for the most part, but a few are permanent and finished with natural wood for contrast with the painted surface of the ceilings and other walls. Below: the stair is simply detailed; its appearance is light and open.



Bill Engdahl, Hedrich-Blessing



The design of this plant had to allow for expansion to the complex shown which is approximately ten times the size of the first phase

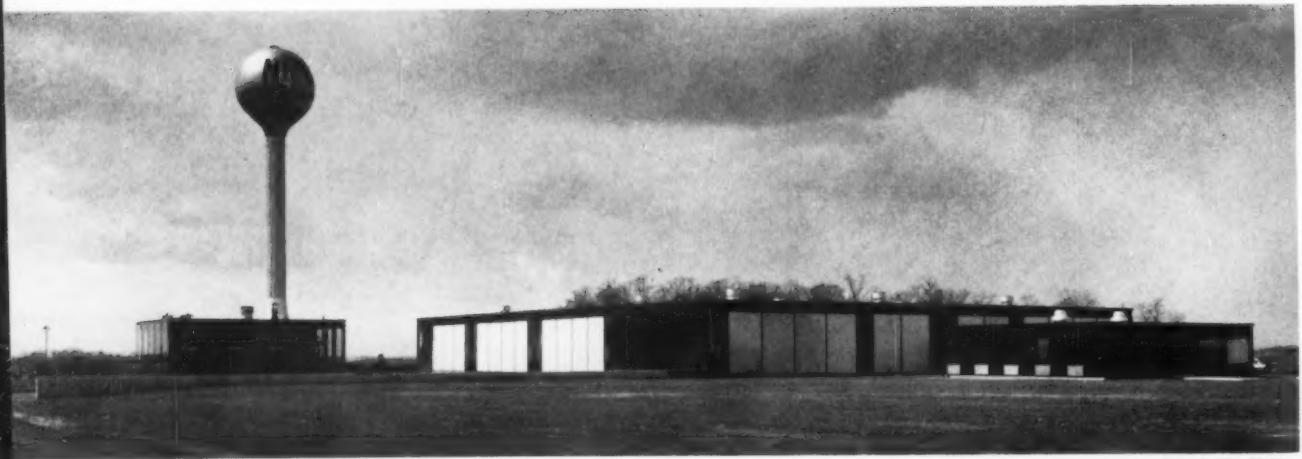
RESEARCH LEADS TO IMPROVED PLANT DESIGN



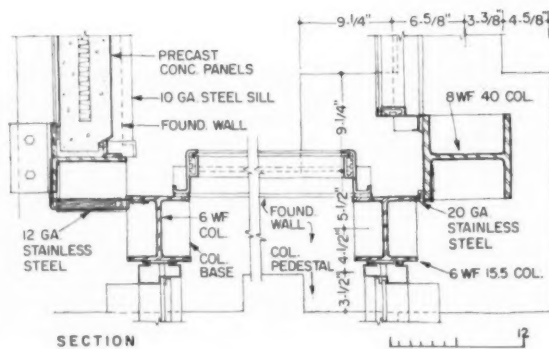
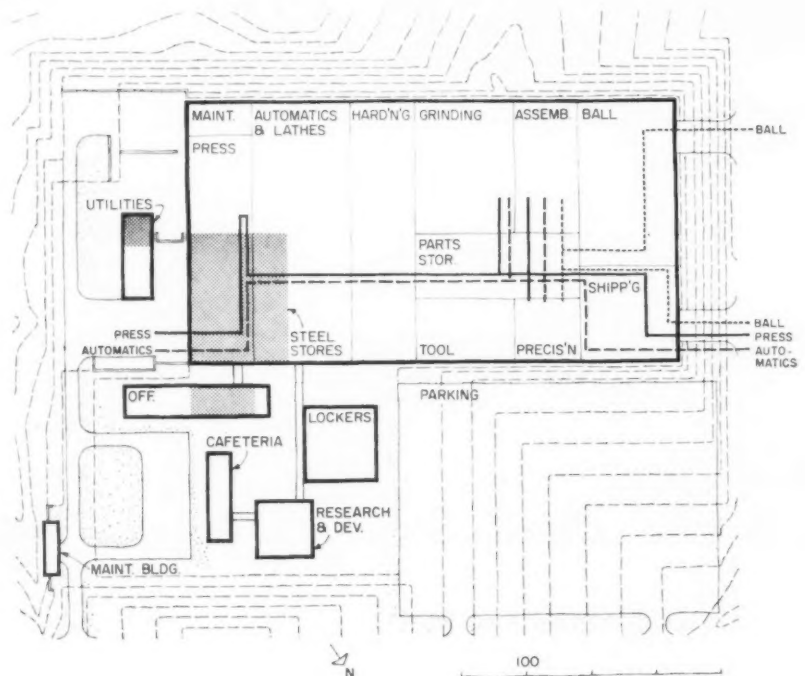
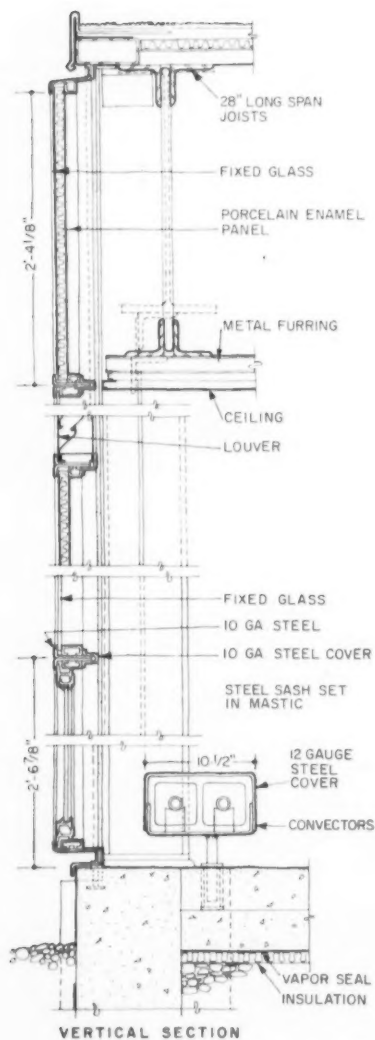
Nice Ball Bearing Company Division, Channing Corporation, Kulpsville, Pa.; Carroll, Grisdale & Van Alen, Architects; David Zuckerkandel, Project Architect; A. E. D'Ambly, Mechanical Engineer; Severud-Elstad-Krueger Assoc., Structural Engineers; Hughes Foulkrod Co., General Contractor

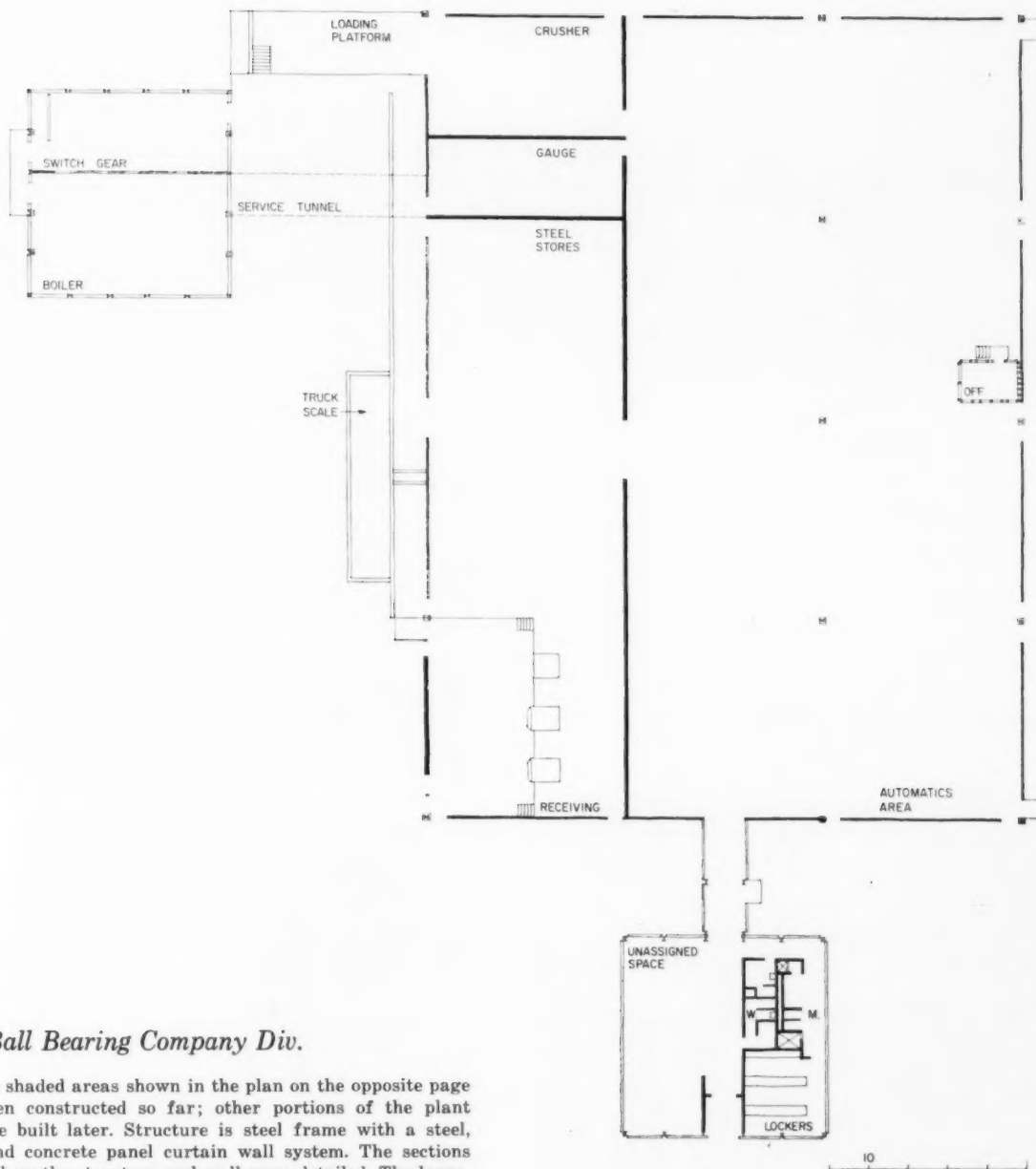
An interesting aspect of this plant design is the role played by its architects in the preliminary considerations before the site was purchased or the program outlined. After area market, distribution, labor supply, and shipping studies had been done by the owner, the architects were engaged. With the owners, they reviewed the studies, spent considerable time in conference with the owners, and analyzed the available sites. After the present location had been decided upon and the land purchased, the architects developed an over-all program for the entire plant.

The plant layout developed by the architects includes all areas needed for full scale production, development work, and employee facilities. The first phase, now complete, operates as one department (Screw Machine). This department will be absorbed in the over-all scheme, when the entire building program has been completed.



Joseph W. Molitor





Nice Ball Bearing Company Div.

Only the shaded areas shown in the plan on the opposite page have been constructed so far; other portions of the plant are to be built later. Structure is steel frame with a steel, glass, and concrete panel curtain wall system. The sections indicate how the structure and wall were detailed. The large-scale plan on this page shows the areas which have been constructed and their relationships to each other. In the smaller-scale plan on the opposite page may be seen the eventual layout of the plant buildings and the production system. Essentially, production will begin on the left side of the building, where the receiving and storage areas are located, and proceed through the building in accordance with the flow lines shown. When the expansion program goes into effect, the present locker and unassigned space will become part of the general office; a new locker building will be constructed, as will research and development and cafeteria buildings



Joseph W. Molitor

Nice Ball Bearing Company Div.

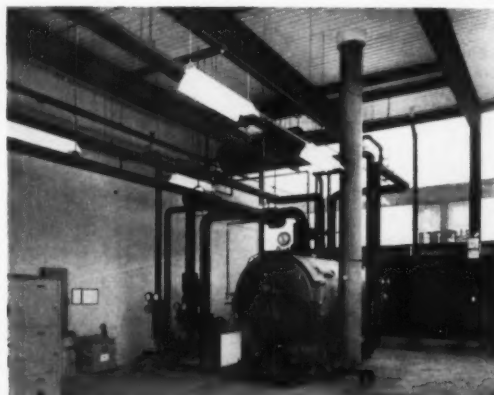
Above: view of the locker room-unassigned space building at right, and the connecting covered walkway to the manufacturing building at the left. Right: views of the interiors of the manufacturing building storage and receiving area and the boiler room. Below: closeup of a corner of the boiler room exterior with the manufacturing building in the background. Bottom: view of the entire present plant with the boiler room at the left. As indicated, the steel structure and the reinforced concrete wall panels are exposed on the interior as well as on the exterior of all building walls



Alfred A. DeLardi



Alfred A. DeLardi



Joseph W. Molitor



Two Levels Add Drama To Hillside Site



Dearborn-Massar



*Residence for Mr. and Mrs. John C. Miller
Seattle, Washington
Ralph Anderson and Dale Benedict, Architects
John C. Miller, Contractor
Mildred Pearson, Landscape Architect
Miller Po'lard, Interior Designer*



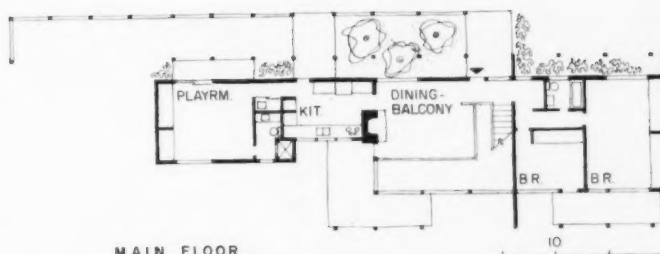
Dearborn-Massar

A highly dramatic living area highlights this two-level house. Sited on a steep slope, the house has a modest one-story front and drops to a many-balconied two floors at the rear. Interior living space is emphasized by creating a two-level living area, with the upper area treated as a balcony to accent the vertical relationship of the two areas. The upper space combines a dining area with sitting space, and opens on an upper level, seemingly free-standing, balcony. The lower floor opens at ground level, and adjoins a master bedroom suite of TV-study room, bedroom and dressing room-bath. The upper level has a childrens' playroom-sleeping room, and two bedrooms for guests or children, all with outdoor terraces, and within easy supervision from the kitchen.

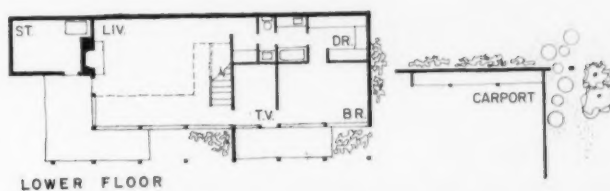
The structure of the house is a boldly-exposed fir post-and-beam frame, with stud panels. The foundation is reinforced concrete. The exterior is pressed-board panels—rough side out and painted gray-green—and cedar siding stained warm gray. On the interiors, floors are cork. Walls are plaster board and cedar siding.



Anderson House

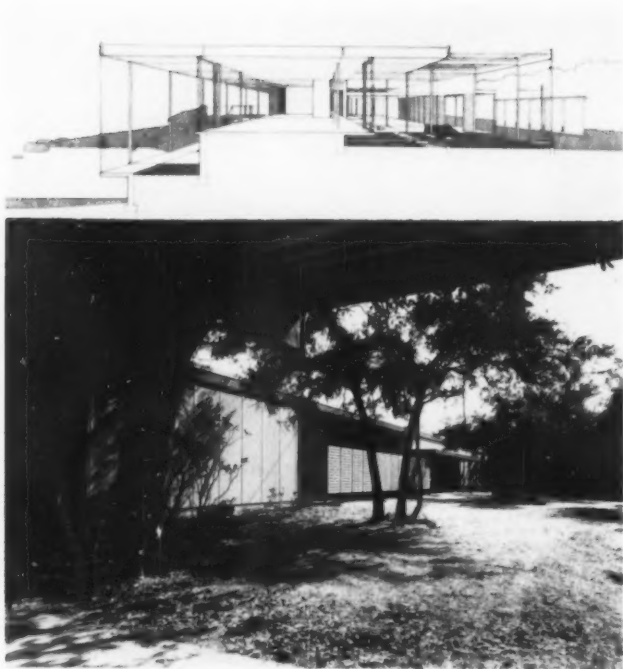


MAIN FLOOR



LOWER FLOOR





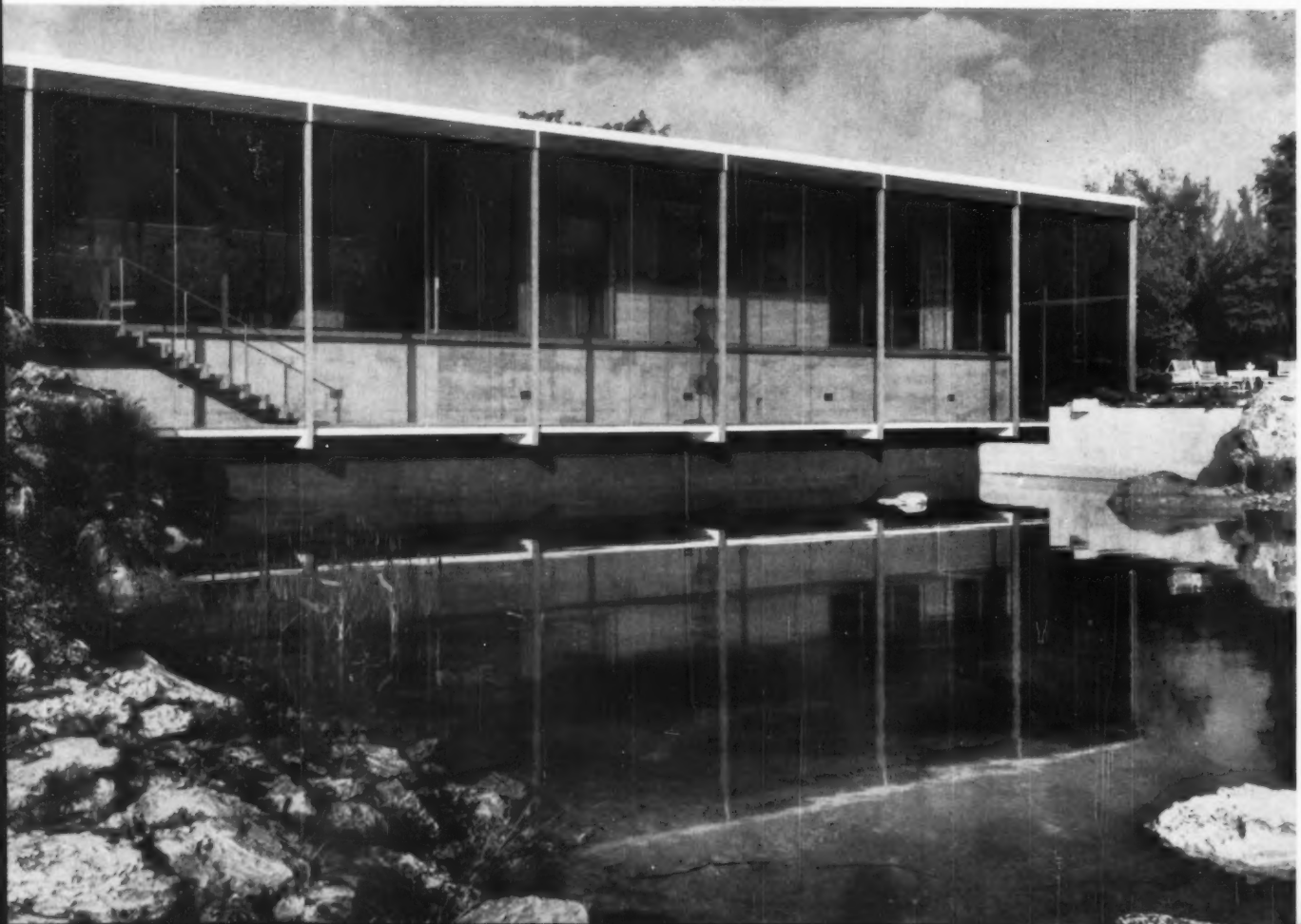
A Florida Room With Engawas

*Residence for Russell T. Pancoast
Miami, Florida*

*Pancoast, Ferendino, Skeels & Burnham,
Architects*

B. E. Mevers, Inc., Contractor

Rudi Rada

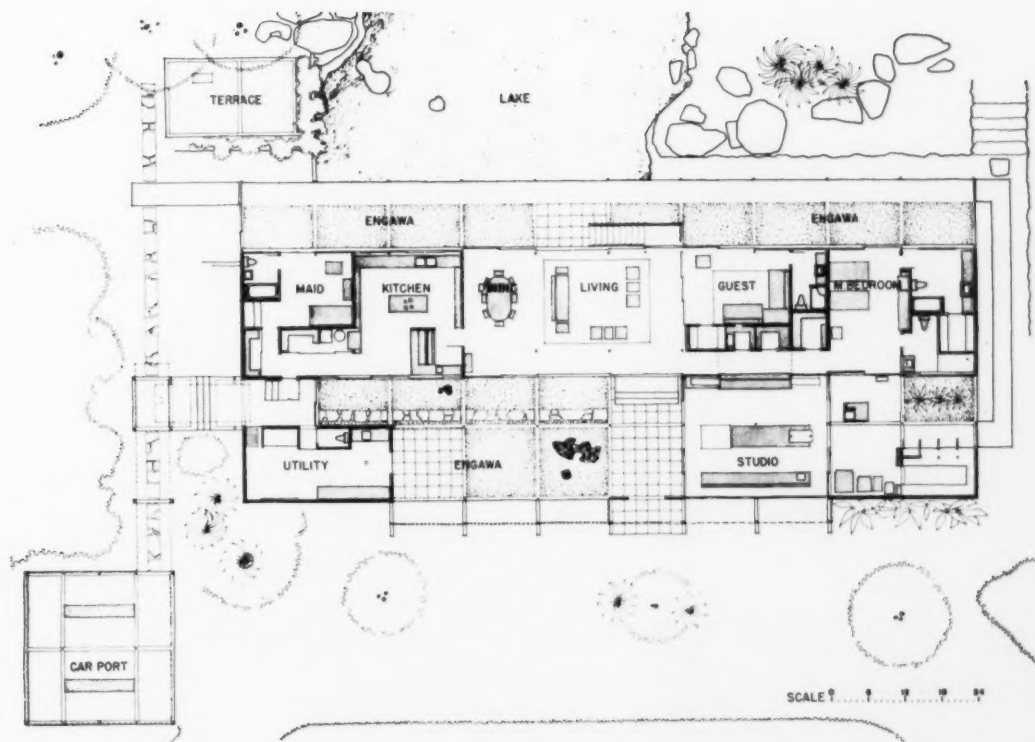


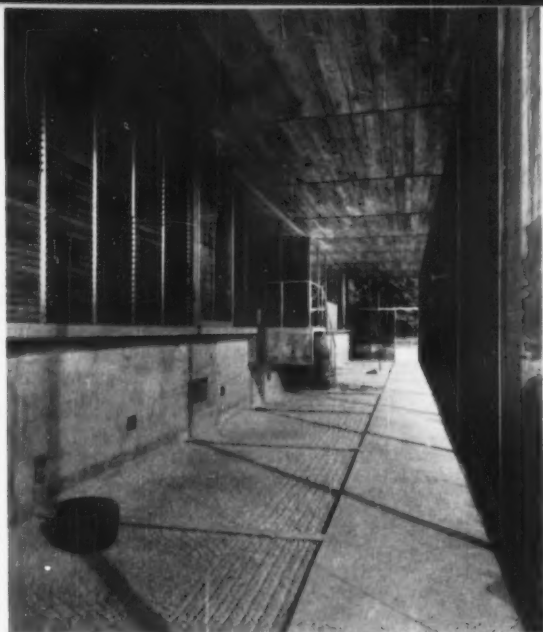


The currently widespread use of screened rooms to expand living areas in the insect-ridden southern climes—and sometimes called Florida Rooms—has been magnified here to include an entire house; and besides usual living areas, to include a number of areas dubbed “Engawas.”

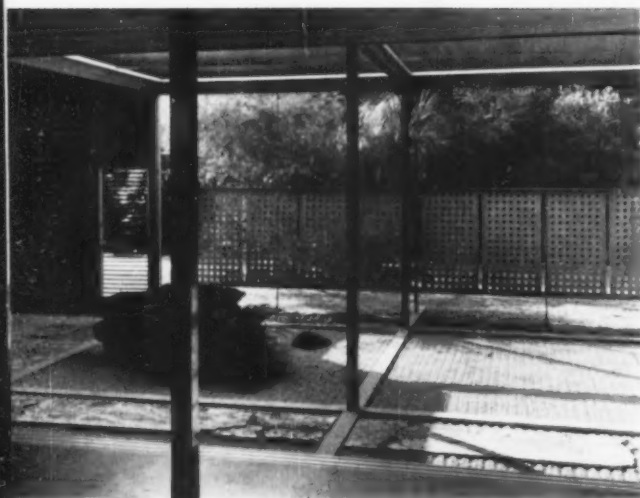
The “Engawas” consist of garden-like areas of combed-sand, a device centuries old in Japan but seldom used in this country despite widespread study of them and visits abroad by the profession. They make singularly good sense in the salt-air regions of our country where usual vegetation is not hardy.

The house combines an improbable combination of austere luxury, casual formality, and simple but ornamental details.





Rudi Rada

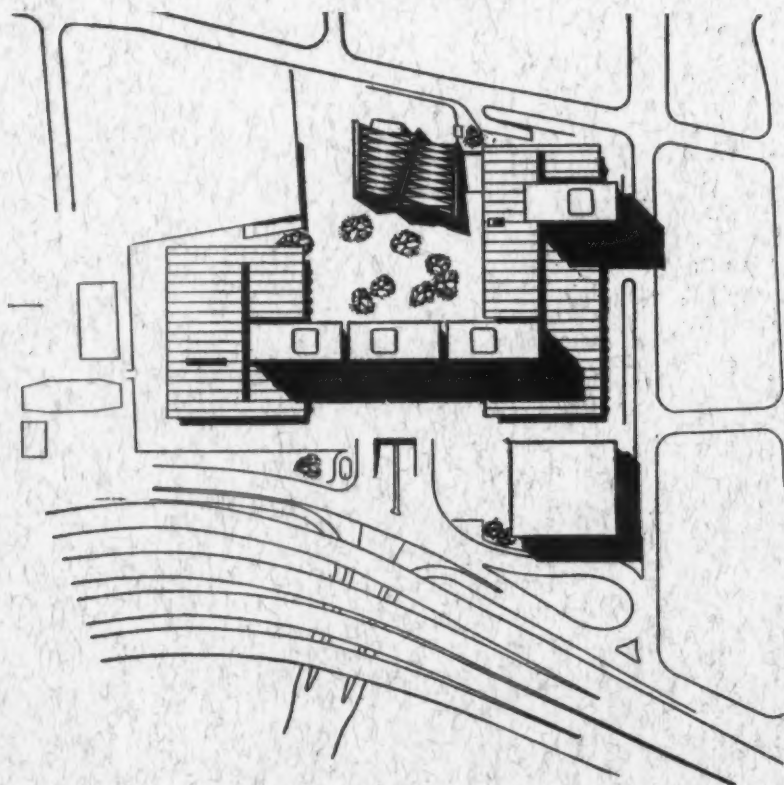
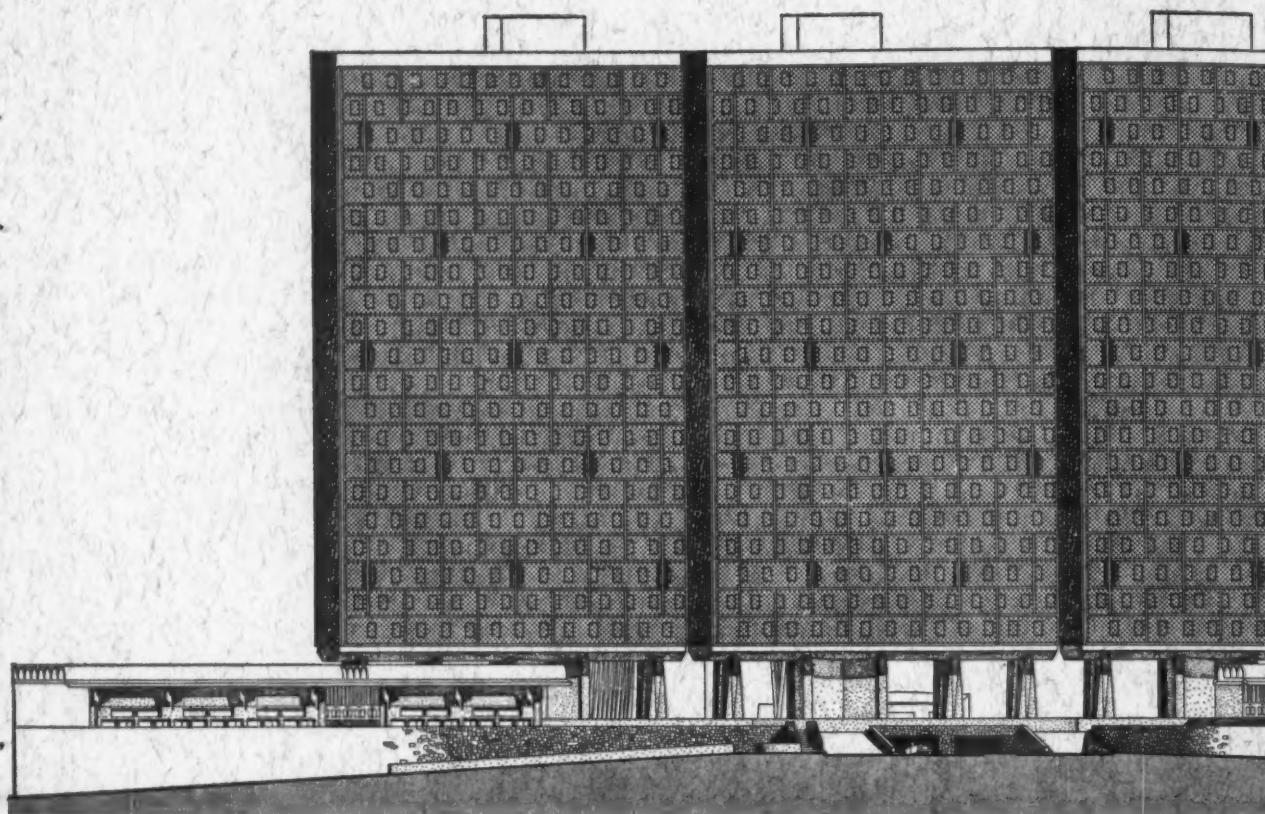


Pancoast House

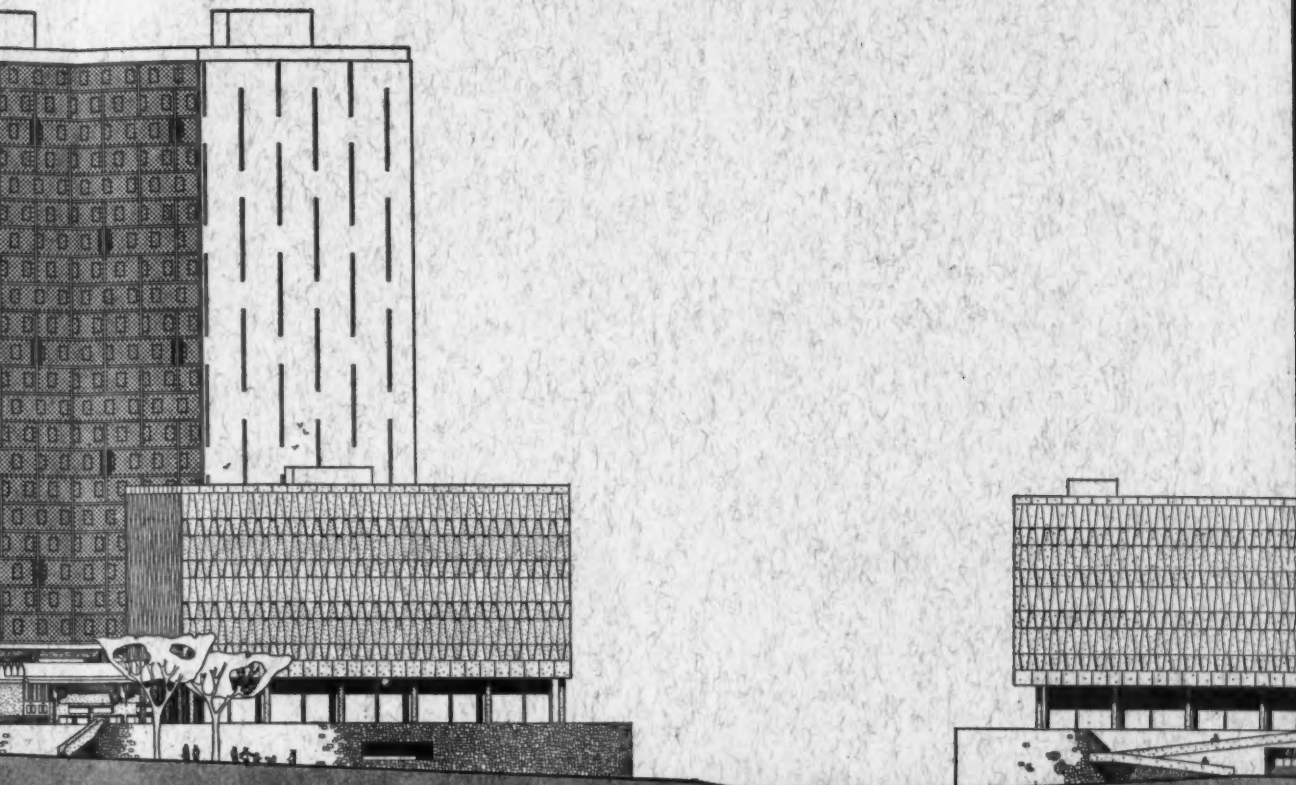
Besides its near-tradition in Florida, the screened house fulfilled the owners' desire for a house open to cooling by the slightest easterly breezes, and open to a small lake to the east and to hammock woods to the west. The owners have adult children, and wanted spaces for entertaining, for occasional guests, for growing orchids, and a complete ceramic and art studio.

As developed, entire walls of sliding glass allow use of the house as a fully open pavilion; if easterly winds become strong, that wall may be closed and spaces left open to the west. Four-zone, reverse-cycle air conditioning was provided for unusual weather extremes.

The structure is of concrete-filled steel columns, with exteriors of cement-asbestos and aluminum battens. Interiors are cypress. Screens are drilled cement asbestos. Floors are cork.



The plot and roof plan at left explains the relationship of building, access roads, and pedestrian plaza. Bounding the plaza to the north (top) the two linked, trapezoidal shaped cinemas of folded-plate concrete will make a characteristic Breueresque foil for the modular regularity of the four tall office buildings and two horizontal rows of shops. The shops will be roofed by precast, thin-shell vaults on 4.5-meter module. The department store at the southeast (lower corner) is yet to be designed



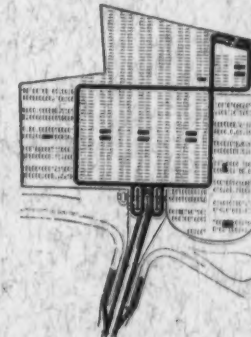
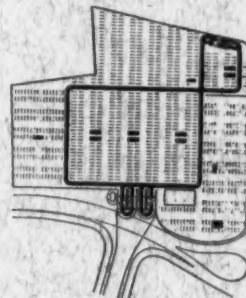
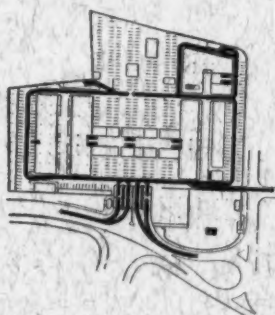
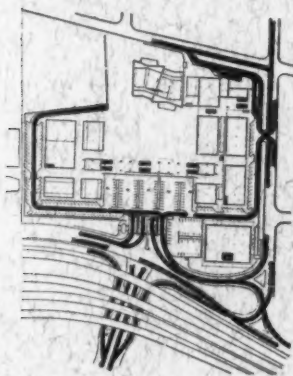
AUTOMOBILE CIRCULATION AND PARKING

PLAZA LEVEL

SERVICE LEVEL
(1st Bsmt)

1ST PARKING LEVEL
(2nd Bsmt)

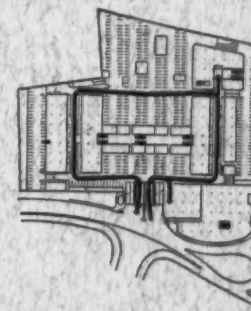
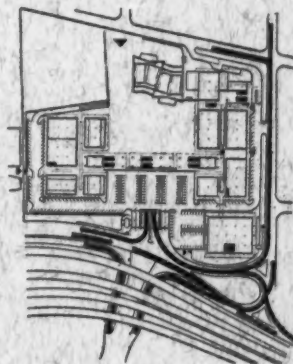
2ND PARKING LEVEL
(3rd Bsmt)



TRUCK CIRCULATION

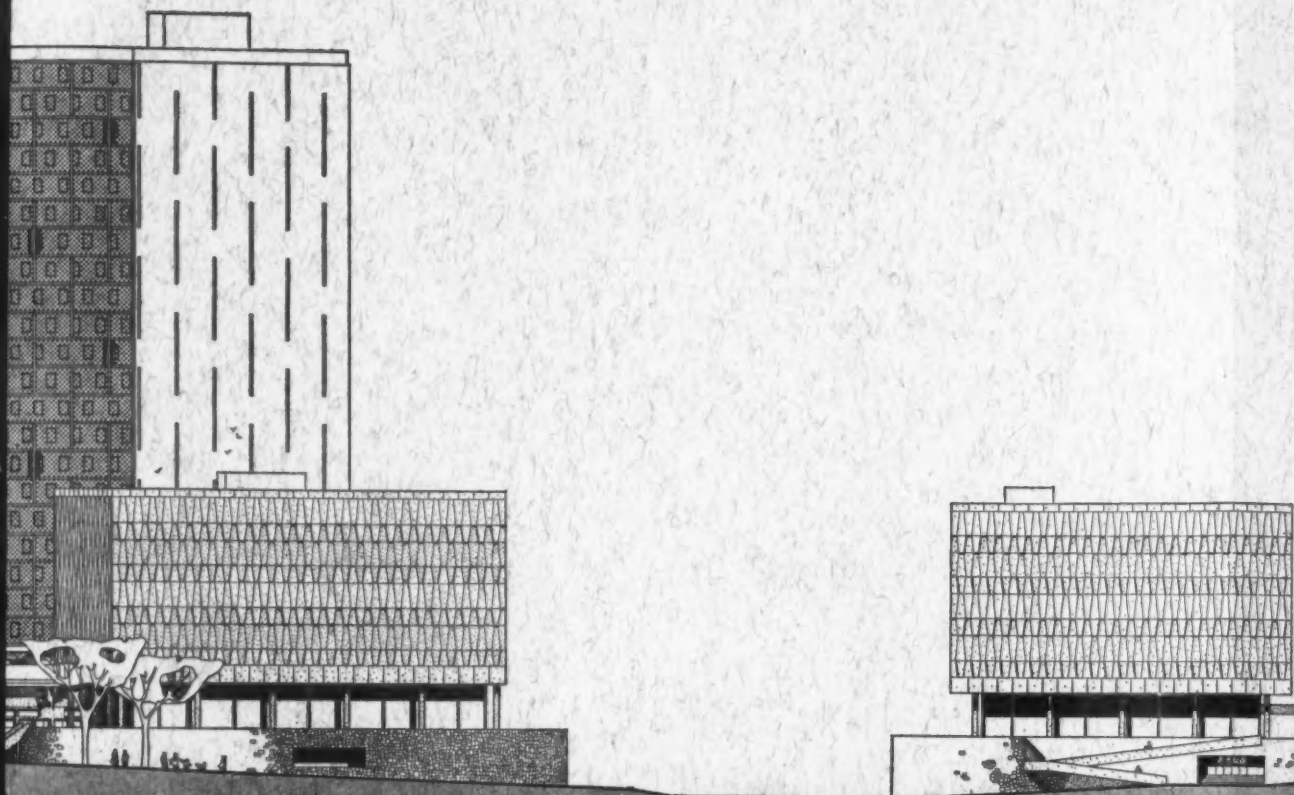
PLAZA LEVEL

SERVICE LEVEL



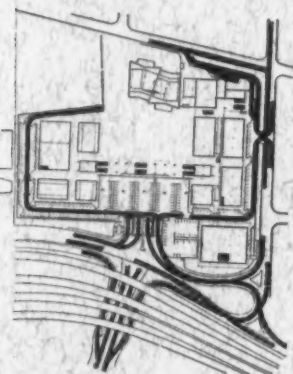
Above: Diagrammatic plans show automobile traffic flow and parking on four of the five levels accessible to private vehicles. Solid lines indicate circulation in and down; broken lines circulation upwards and out

Right: Note that truck and automobile traffic are separated, and that delivery for all buildings is confined to one level immediately below the pedestrian plaza. Trucks enter the project from the south only while cars may enter from either north or south

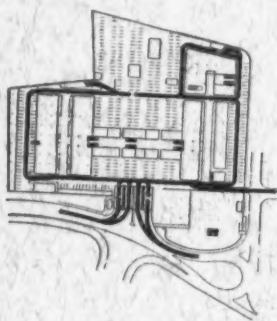


AUTOMOBILE CIRCULATION AND PARKING

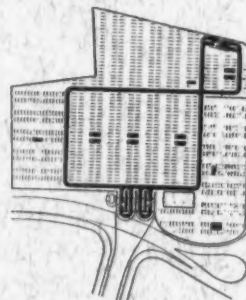
PLAZA LEVEL



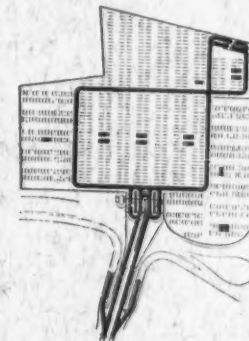
**SERVICE LEVEL
(1st Bsmt)**



**1ST PARKING LEVEL
(2nd Bsmt)**



**2ND PARKING LEVEL
(3rd Bsmt)**

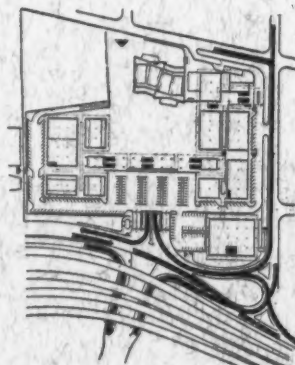


Above: Diagrammatic plans show automobile traffic flow and parking on four of the five levels accessible to private vehicles. Solid lines indicate circulation in and down; broken lines circulation upwards and out

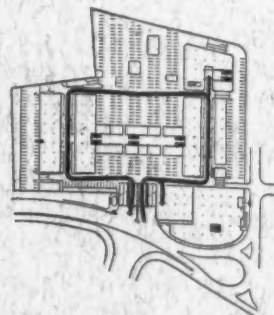
Right: Note that truck and automobile traffic are separated, and that delivery for all buildings is confined to one level immediately below the pedestrian plaza. Trucks enter the project from the south only while cars may enter from either north or south

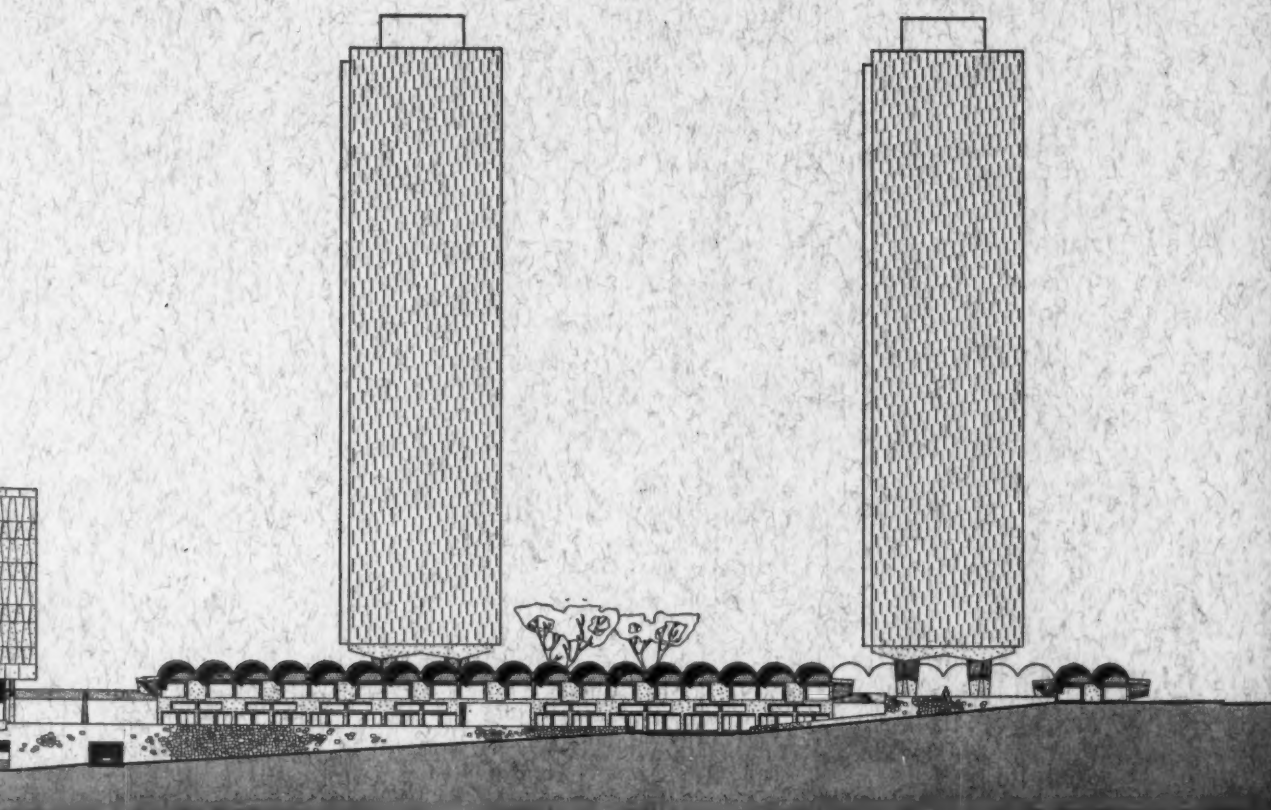
TRUCK CIRCULATION

PLAZA LEVEL



SERVICE LEVEL





Downtown Complex for Caracas

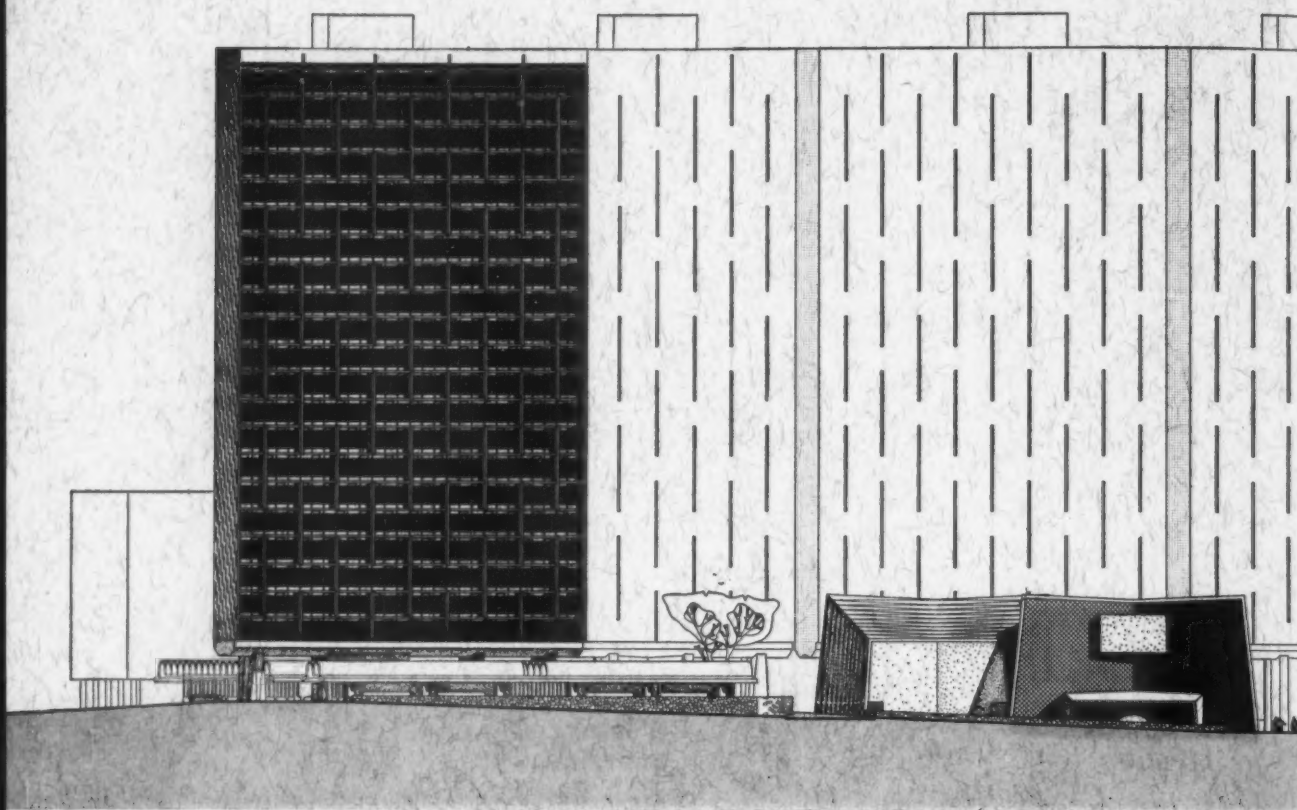
*El Recreo Center
Caracas, Venezuela*

*Marcel Breuer, Architect
Herbert Beckhard, Associate*

*Fuenmayor & Sayago
Associated Architects*

Final drawings are being prepared and construction will start soon on this 25 million dollar project—El Recreo Center—in the heart of Caracas. The development—being built by a group of local business men—will occupy a 22-acre site and will include four 21-story office buildings, two cinemas, a department store, a supermarket, a large number of shops and restaurants, and parking for 3600 cars. The scheme will focus on a central pedestrian plaza about one-half as large as San Marco.

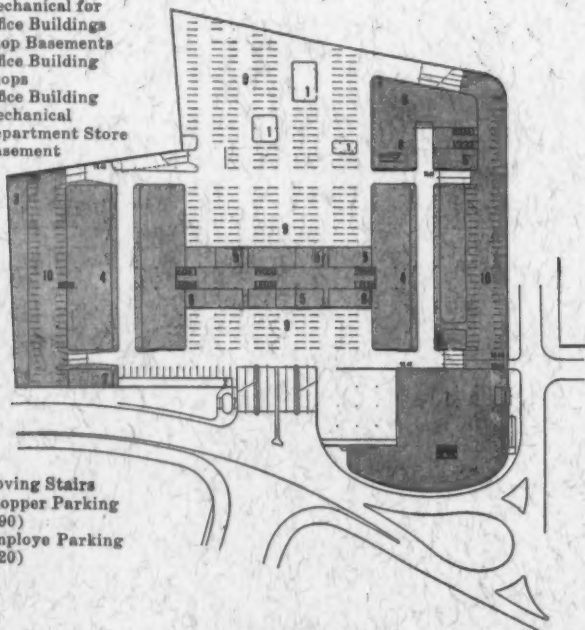
In the design, particular study was devoted to the traffic and circulation patterns of pedestrians, automobiles, and trucks. As a result, pedestrians will be free of vehicular hazards; automobile and truck circulation will be separate; delivery and service will be concentrated on a single level immediately below the plaza; and automobiles will be parked on four levels below grade. Construction will generally be of concrete with various facings.



SERVICE LEVEL (1st Bsmt)

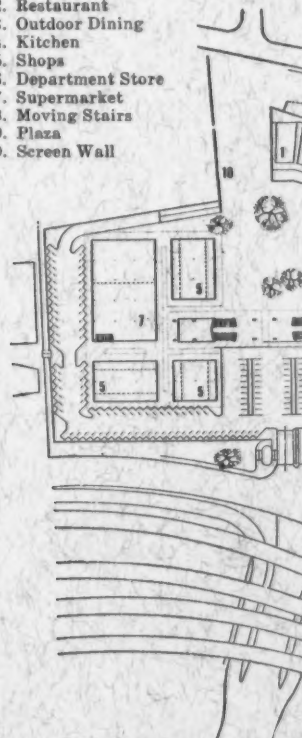
1. Cinema Basements
2. Maintenance & Storage
3. Shop & Restaurant Basements, Mechanical for Office Buildings
4. Shop Basements
5. Office Building Shops
6. Office Building Mechanical
7. Department Store Basement

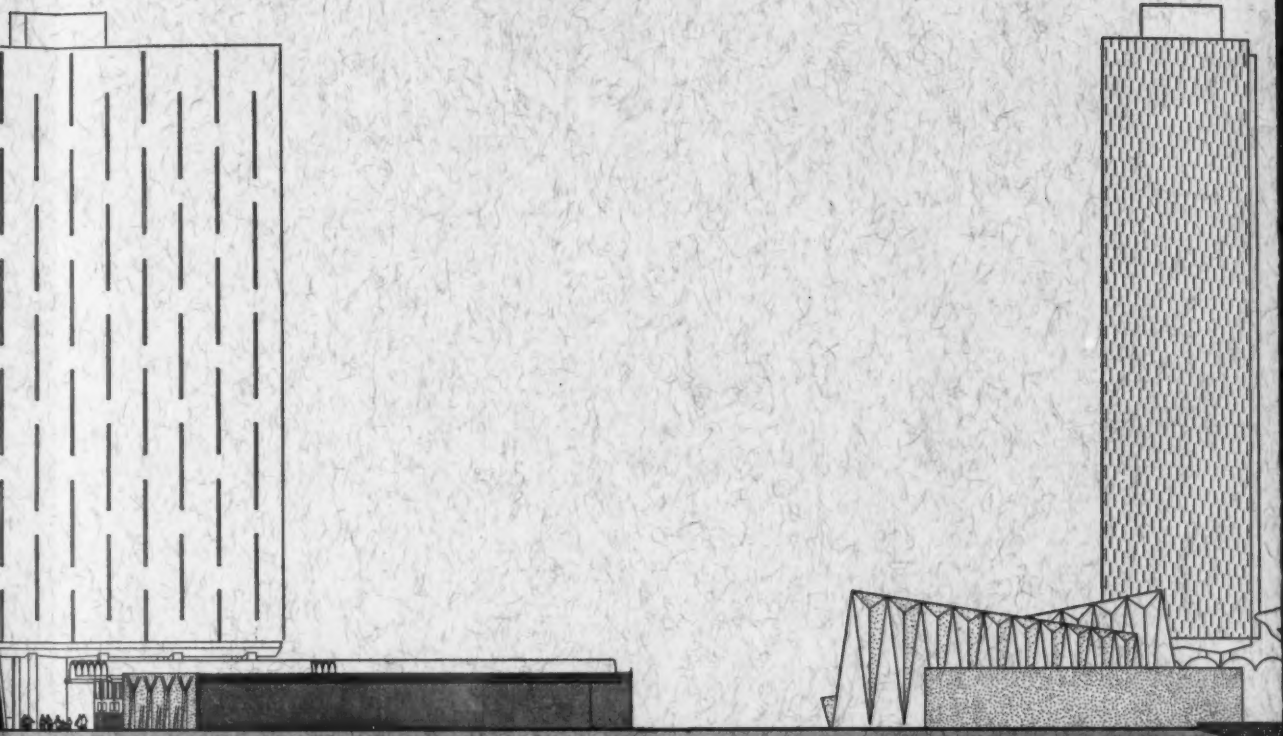
8. Moving Stairs
9. Shopper Parking (290)
10. Employee Parking (120)



PEDESTRIAN PLAZA LEVEL

1. Cinema—Orchestra Level
2. Restaurant
3. Outdoor Dining
4. Kitchen
5. Shops
6. Department Store
7. Supermarket
8. Moving Stairs
9. Plaza
10. Screen Wall

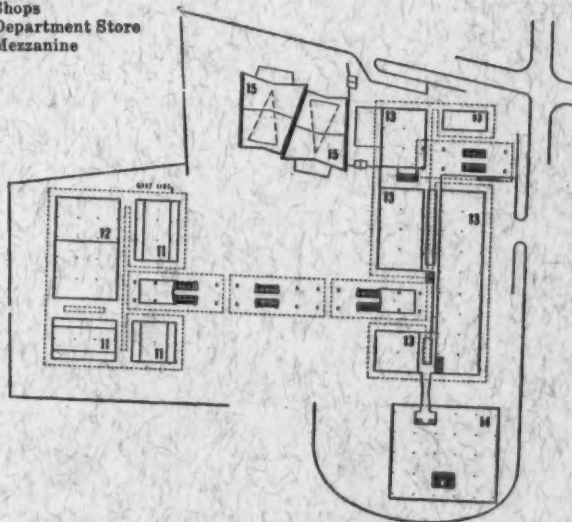
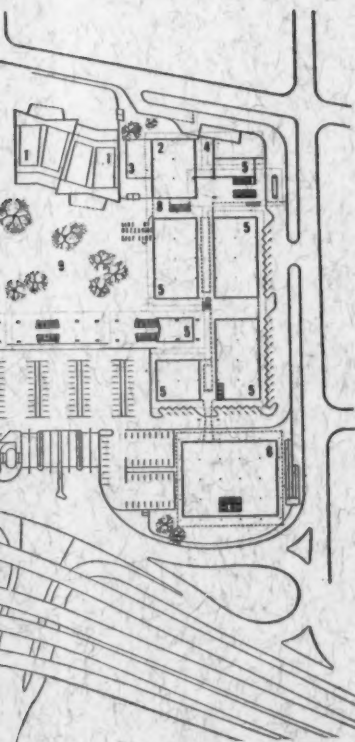




EL

MEZZANINE LEVEL

- 11. Plaza Shop
Mezzanines
- 12. Supermarket
Mezzanine
- 13. Shops
- 14. Department Store
Mezzanine

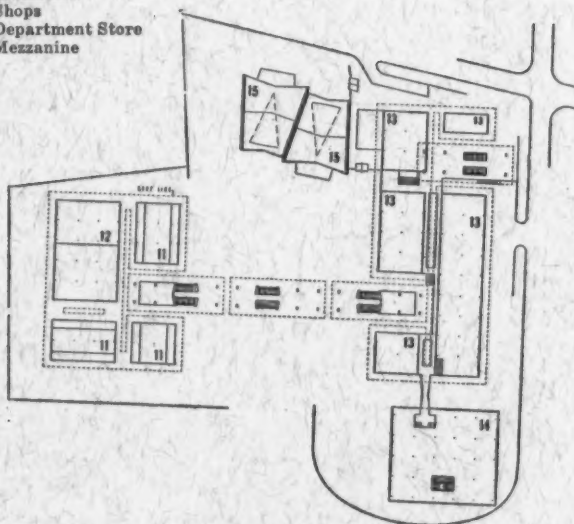
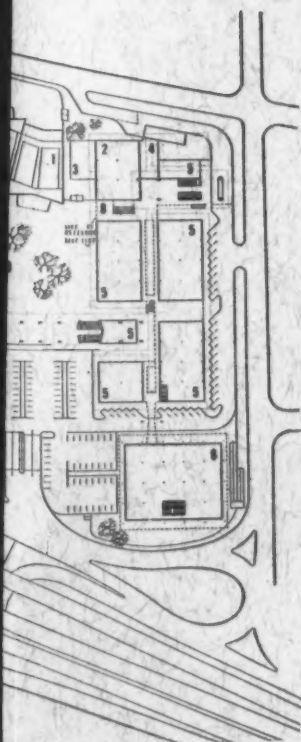


All buildings and parking basements (except the cinemas) are designed on a modular pattern of 9-meter bays—a basic dimension that parks three cars handily; is subdivided for the shops into 4.5-meter units; for the office buildings into 6 sub-modules of 1.5 meters each for flexibility of partitioning. Curtain walls and sunscreens follow the pattern.



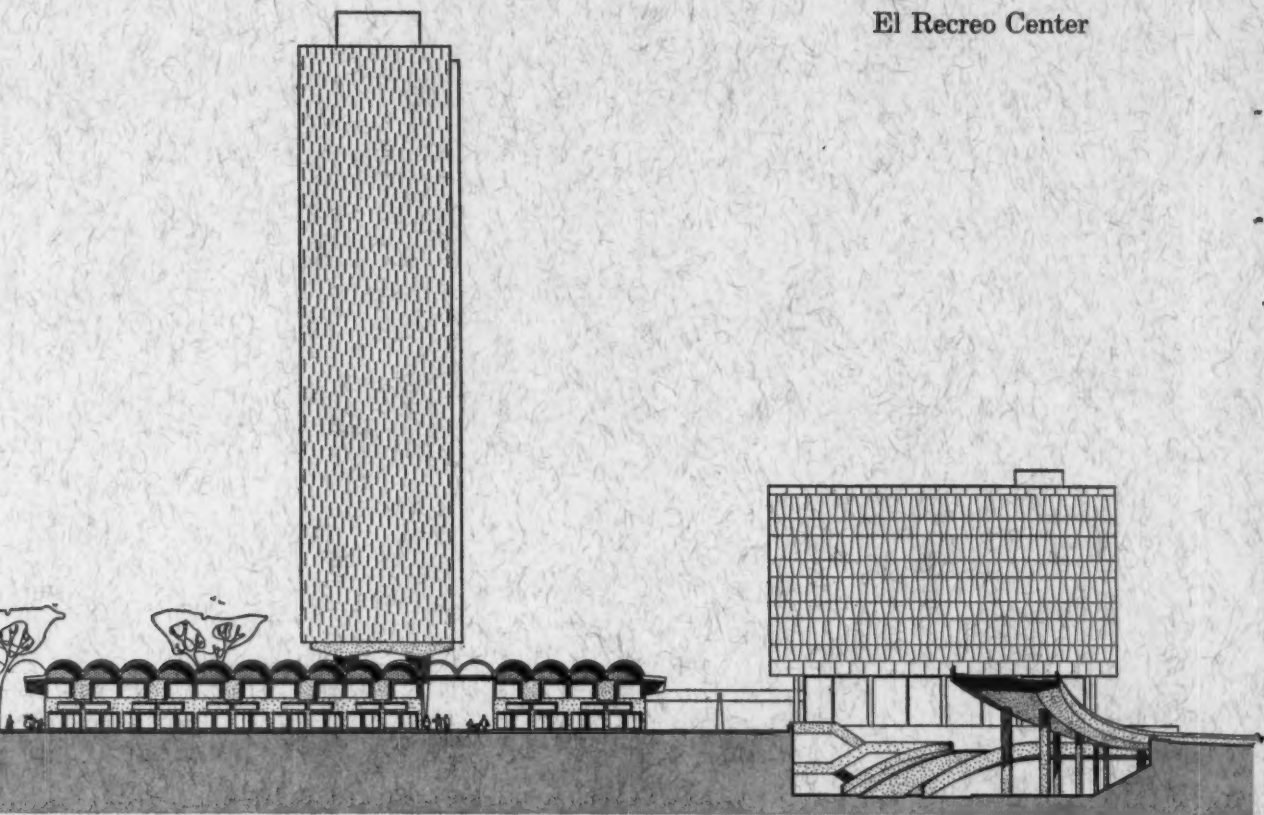
MEZZANINE LEVEL

- 11. Plaza Shop
Mezzanines
- 12. Supermarket
Mezzanine
- 13. Shops
- 14. Department Store
Mezzanine

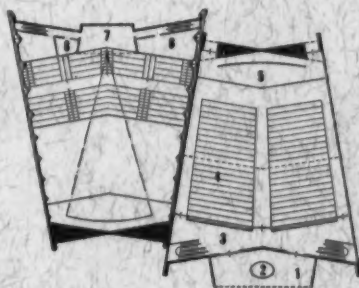
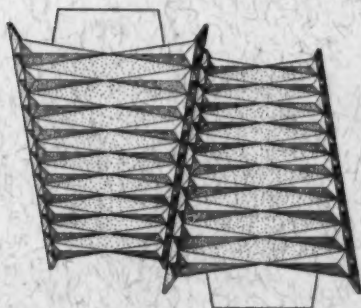


All buildings and parking basements (except the cinemas) are designed on a modular pattern of 9-meter bays—a basic dimension that parks three cars handily; is subdivided for the shops into 4.5-meter units; for the office buildings into 6 sub-modules of 1.5 meters each for flexibility of partitioning. Curtain walls and sunscreens follow the pattern

El Recreo Center

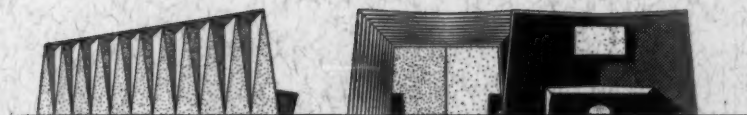


The free-standing, air conditioned cinemas will be of folded-plate concrete, exposed inside and out; a plastic expression that should contrast effectively with the rectangularity of the office buildings and the undulating vaults of the banks of shops. The two theaters will be structurally independent to prevent acoustic disturbances between the two. Both buildings have been designed to meet the requirements of wide-screen projection, and are arranged so balcony prices can differ from orchestra



THE TWO CINEMAS

1. Foyer
 2. Ticket Booth
 3. Orchestra Lobby
 4. Orchestra
 5. Stage
 6. Male Employees
 7. Projection Booth
 8. Storage
- Balcony Lobby is at Intermediate Level



Office Organization and Procedures for Present-Day Practice

The architects were asked—

Please describe your own concept of architectural services, along these specified lines:

- 1. Have you extended or diversified your own services or added new specialties? Are you offering services for new building types, making specialized studies, or doing out-of-the-ordinary consulting work?*
- 2. What innovations have you made in your office organization and procedures, to accomplish these objectives?*

The comments in this article are a continuation of the series which began in February 1960.

An examination of the role of the architect today has been under way in the pages of the RECORD for some time now. Lately, this examination has become more and more concerned with reporting the images architects have of themselves, now and for tomorrow, and how they are fulfilling these images. The comments presented in February indicate that numerous paths are open to architects, that individual firms are exploring new ways, that some are diverging from the generally accepted paths, while others are sticking to the more historic roles of the architect.

Three of the firms reported on here have made the basic decision that the way for them is that of offering unusually complete services for an almost infinite variety of projects, on a vast geographical basis. In order to do this, these firms have become integrated architect-engineer organizations. In addition, each has a number of specialists in other fields. All three are larger than average. Together, they make a good case for their approach to the problems of today. The fourth firm reported on dissents from the majority opinion expressed by the others. In all probability, this is a case in which each side is right, at least to a degree and within the frame of reference it has selected.

Combination of Skills for Complex Projects

I think our office is in the process of developing naturally to fulfill the needs of the projects in which we find ourselves involved. Of course the first step is the realization that a building is not just a piece of architecture, as the word "architecture" is commonly understood, but the result of the application of varied engineering skills in combination with the designer's art, to form a functional, economic, and esthetically pleasing whole.

We find that in a typical project, only about 35 per cent of the cost of professional services is expended on the so-called architectural aspects; the remaining 65 per cent goes to accomplish the other aspects of the project such as engineering, estimating, specification writing, and the like. So we have taken the step of becoming architects-engineers.

When you consider that a major industrial project may house five or six thousand people, you begin to see that we have to be concerned with how the project will affect the surrounding area so far as traffic circulation and utility requirements are concerned. So we have had to develop a group of people who understand traffic problems; and our civil engineering group understands city sewer and storm drain problems.

In the process of developing major sites in the outskirt areas of the city, we have come across the problem of getting land rezoned. In order to help our clients to achieve the necessary rezoning, we have been forced to consider the over-all city planning implications of such action. So we become involved in city planning.

Most projects in new development areas require new subdivisions and street and utility improvements. Thus we become actively engaged as subdivision engineers.

Frequently we are asked to study new sites for potential developments and report on the costs of developing new land. This can become quite involved, as it did in the case of the Mission Valley site where it was necessary

to do a hydrology study to determine the high water level in the valley so that the shopping center could be situated at the correct and economic grade level during periods of flooding.

We have found it necessary to provide interior decorating and material selection services, as well as color consultation. As yet we have not found it necessary to provide landscaping, kitchen consultation, surveying or soil analysis, though there may come a time when it will be desirable to have some of these specialists on our staff on a full-time basis.

*John Day,
Albert C. Martin and Associates,
Architects & Engineers*

Diversification Within Existing Departments

Your idea of demonstrating how architects in recent years have broadened their fields of endeavor is a good one. A report of this type would be a unique contribution, and should be of service to all practicing architects.

In response to your question regarding diversification, we list the following areas as examples of what our firm is doing:

1. Military: For the Army and the Air Force, we have planned military base installations and housing. In the case of Air Force housing, we have had the opportunity to plan two communities of approximately 300 families each. These have been coordinated with local school and community developments.

2. Urban Planning: A. For the City of Detroit we have completed a master plan of a section of the downtown area occupied primarily by medical and judicial facilities. B. For a suburban community, we have in progress a study of business district rejuvenation and reorganization to counteract the threat of shopping center competition. C. For a city college, we have proposed a master campus plan that devotes a major portion of the site to commercial development intended to help endow the college.

3. Architectural Research: A. For the Office of Civil and Defense Mobilization we have completed a research and development program concerned with the feasibility of providing radiation fallout protection in elementary schools. This has been a major study involving a number of our staff over a period of 18 months. We are now engaged in a somewhat similar study, for OCDM, of the protection of office and apartment structures throughout the country. B. We have conducted two research investigations regarding new educational methods. One of these was concerned with combining seminar and audio-visual facilities in the same classroom. The other involved reorganization of the secondary school curriculum to provide a more flexible teaching program.

4. Structural Research and Model Testing: Seven of our buildings in recent years have utilized experimental structural techniques that involved special analysis. For five of these buildings we have built actual models and load-tested them, using strain and deflection gauges as well as other measurement techniques.

5. Electrical Engineering Research: For one of our military clients, we have made detailed cost studies of electricity as a heating source for housing projects.

In general, our expanded activity has taken place within

the regular departments instead of through the addition of new departments. However, we might mention two rather specialized areas appreciated by some of our clients: 1. Contract Finance: Most of our school designs are financed by bond issues. We have found that at the beginning of jobs clients who are provided with detailed schedules of expected construction payments can better invest their funds for maximum return during the construction period. This advice is handled by our Contract Finance Officer. 2. Publications: Increasingly, our clients turn to us to handle the writing, photography and layout involved in the publication and distribution of information, particularly when such information pertains to buildings or building research.

*Wallace B. Cleland,
Eberle M. Smith Associates, Inc.,
Architects & Engineers*

Organization for Efficient Practice

Certain current situations and facts concerning the practice of architecture and engineering as conducted by our firm will help to explain our philosophy and to articulate the activities and thinking which have guided the firm. Some of these are as follows:

1. The firm's practice is almost equally divided between architecture and design (in the more historic sense) and commissions for engineering design work. Our engineering work includes not only engineering for buildings but several specialized types of engineering design.

2. The firm is heavily involved in professional services for commercial structures, educational facilities, and other building types.

3. The firm is heavily involved professionally in military work, space programs, and diversified work for the missile industry.

4. The firm home office is in Los Angeles, California. An additional office in Washington and, currently, six overseas offices are maintained. At the present time, the firm has 480 employees.

5. The firm was established on January 1, 1946. The firm acts as a corporation in California but as a partnership in several other states.

We feel that there is a distinct difference between a business and a profession. In our firm, we naturally have felt that we are in a profession because we have been taught to think that way. Increasingly, we have found that we must re-examine this concept and have given a great deal of thought to it over the years. At the present time, we feel that we are perhaps 70 per cent professional, but we are at least 30 per cent on the side of business and commerce. Whether the percentages are correct or not is immaterial. The conclusion is important, though, because we have found that we must be concerned with handling our relationships with our clients/customers in a businesslike manner. This involves, for example, careful consideration of building budgets and a determination to state categorically whether we believe we can or cannot do what the client wants within the budget he has proposed. We find we must use similar approaches to the other problems of our activities.

*Phillip J. Daniel,
Daniel, Mann, Johnson, & Mendenhall,
Architects & Engineers*

ORGANIZATION FOR EFFICIENT PRACTICE

2.

Daniel, Mann,
Johnson, & Mendenhall,
Architects & Engineers

Daniel, Mann, Johnson, & Mendenhall is an architect-engineer firm. This in itself is descriptive of a somewhat broader range of capabilities than is usually the case in most architectural firms. DMJM is even more complex than the usual A-E firm; it has become an organization which operates on a global basis, accomplishing professional work of a varied and highly complex nature, work that is far beyond the capabilities of most organizations.

Much of the work of the firm is on buildings of the usual kind—schools, office buildings, institutions—but a growing percentage of the jobs obtained by the firm are in new fields such as missile and space exploration bases. These fields are poorly defined even now, and many of them didn't even exist a few years ago. So involved is the firm in the new types of projects that—to an extent—the firm members have begun to talk in the manner of the clients they serve. It is not unusual to hear a DMJM partner or employee use a phrase of the research and development man such as "the state of the art" to describe the level of development or of sophistication in a given field. Exactly how all of this came about, no one including the firm partners seems to know precisely. Perhaps the best way to take a look at the firm and how it accomplishes the work it takes on is to examine its background capabilities, and the types of operations in which it is engaged. Perhaps in this way, a key to the firm can be found. By examining the "what," possibly the "how" will become apparent.

Atlas Missile Launching Pad, USAF Missile Test Center,
Cape Canaveral, Fla.

Official USAF photo



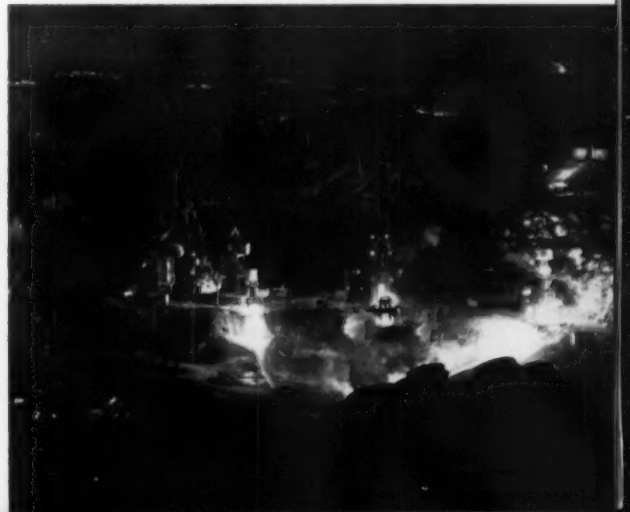
Ladera Elementary School, Manhattan Beach, Calif.

Herbert Bruce Cross



Apartment Buildings, Barrington Plaza, Los Angeles

Rocket Engine Test Stands, Rocketdyne Div., North
American Aviation, Inc., Santa Susana, Calif.



Daniel, Mann, Johnson, & Mendenhall

Background

DMJM is, at the present time, a little less than 15 years old. It was founded shortly after World War II, by Phillip J. Daniel and Arthur E. Mann, architects, and S. Kenneth Johnson, architect and engineer. Another architect, Stanley A. Moe, and a structural engineer, Irvan F. Mendenhall later joined the firm as partners. Each of the original partners brought a few jobs into the firm with him. During its first three years, DMJM did a number of projects (mostly public schools) and lost money. At this stage, it became apparent that the firm's future health and success depended on making some basic decisions about the goals the partners desired for the firm and how to get there.

The partners subjected the firm and themselves to a severe and searching re-examination, and went through a survey by an outside management consulting firm. The essential decisions were made: 1) to seek out a variety of large, complex work on a world-wide basis, in addition to the building types being done at the time; 2) to do all (or almost all) engineering and other technical work within the firm; 3) to establish a business-like organization, departmentalized with a partner in charge of each department; 4) to grow.

With the basic decisions made, the firm has grown and has gone into the types of work it wanted. This has not been accomplished overnight or without pain, however.

While growing, the firm has developed a distinct philosophy and approach to architecture and related fields, and the capabilities for putting these into practice. As expressed by DMJM, the capabilities might be listed in this manner: 1) adequate financial ability of the firm to handle its commitments; 2) experienced and knowledgeable people within the organization, with the ability to interpret and direct complex programs, perform major technical and management functions for clients, and evaluate and establish technical solutions to the client's problems; 3) ability to meet difficult and changeable production schedules; 4) ability to perform professional work within budgets; 5) flexible and reasonable professional fees. It should be profitable to examine, in some detail, the DMJM approach to these ideals. This should be possible by taking a look at the types of jobs the firm does, the services they offer, their geographical range of operations, the types of people on the staff (and their capabilities), the DMJM organizational setup, and the extra-professional activities of the staff.

Types of Work

Since its founding, DMJM has performed professional services for well over \$2 billion of construction. This total represents over 600 commissions. The firm has done a large number of buildings of every usual type. These include schools, apartment houses, office buildings, industrial buildings of various kinds, hospitals, laboratories, hotels, public buildings, shopping centers, and the like.

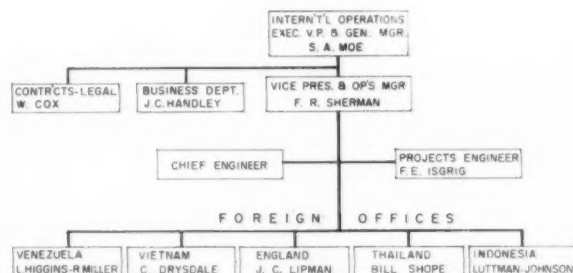
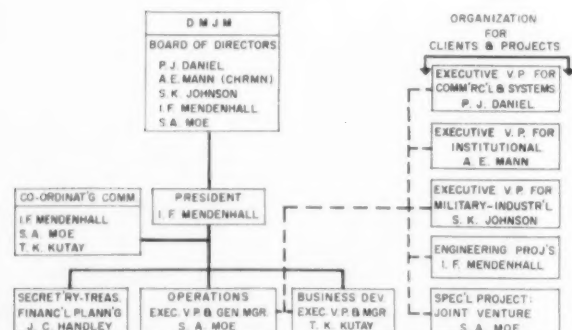
In addition, DMJM has done such highly specialized jobs as Wonder Palace (an integrated convention center at Anaheim, Calif.), master planning of Mountain Park near Los Angeles (includes residential, commercial and educational areas), designs for a food store chain, Atomic Energy Commission facilities for storage and disposal of radioactive waste, Santa Susana, Calif., Hyperion Sewerage System, Los Angeles, Calif., San Bernadino and Los Angeles flood control projects, streets, roads, and highways in California, Maryland, Washington, D. C. and other locations.

The firm has been responsible for the professional work on numerous military projects, including officers quarters and other military housing, complete air bases, harbors, communications centers, and other types.

Missile and space work has rapidly become a firm specialty. DMJM has performed complete professional services, including master planning, for a number of missile launching complexes and test facilities. Work done by the firm has included, in addition to the usual services, such things as roads and drainage ditches, high power transmission systems, utility systems, water distribution and sewerage systems, and specialized storage for liquid oxygen and other materials. For much of this work, the programs were incompletely defined because of the many unknowns present. Much out-of-the-ordinary research and development work was required of DMJM in order to do the work for which they were engaged.

Services of the Firm

In general, DMJM offers complete architectural services, along with all of the related engineering, planning, and specialized services required for almost any existing building type. All of the work is accomplished within the firm itself, except for the most specialized areas such as satellite tracking equipment or atomic physics. For consultation in these and similar areas, DMJM has made ar-



Left: Basic DMJM Firm Organization Chart
Above: Foreign Operations Division Chart

rangements with a number of specialists outside the firm for consultation on a continuing basis.

The firm has become more and more involved in space projects, missile base design, atomic design, and other projects of this advanced nature. In order to do work in these areas, it has become necessary to build up the firm's capabilities in fields less closely related to architecture than the usual engineering specialties. Service are now performed by the firm in such areas as industrial engineering, statistics, electronics, and the like.

The following is an outline of the types of services now being offered by the firm:

I. Master Planning

- A. Establishment of client's requirements and limitations
- B. Evaluation of influencing factors
 1. Location and interrelationship with other facilities
 2. Climate
 - a. Rainfall
 - b. Temperature
 - c. Wind
 - d. Humidity
 3. Transportation and accessibility
 4. Zoning and governing codes
 5. Utilities and rates
 - a. Water Supply
 - b. Gas
 - c. Electrical Services
 - d. Waste Disposal
 6. Tax and insurance rates
 7. Characteristics of population, labor force
 8. Community support and acceptance
- C. Determination of feasibility
 1. Economic evaluation
- D. Determination of future expansion
- E. Scheduling of construction of urgently needed components
- F. Recommendations and counsel

II. Architectural Planning and Design

- A. Analysis of client's requirements
- B. Development of concepts
- C. Preliminary engineering
 1. Structural
 2. Mechanical
 3. Electrical
 4. Civil
- D. Estimates

E. Development of working drawings

1. Architectural
2. Engineering

F. Preparation of Specifications

1. Interior Design
2. Color coordination
3. Flow studies
4. Architectural lighting
5. Architectural rendering

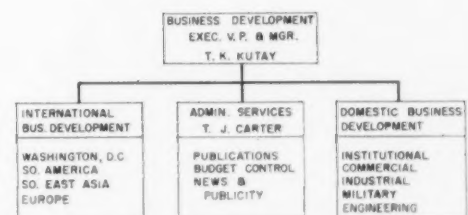
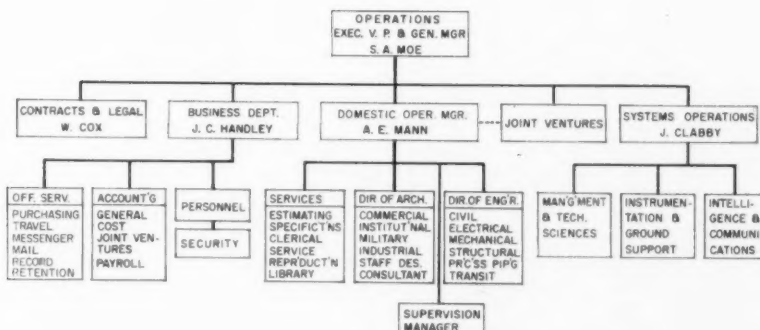
III. Engineering Planning and Design

A. Planning

1. Site development
2. Cost analysis and economic evaluation
3. Reports
4. Investigations

B. Design of Complete Facilities for:

1. Sanitary Sewage Systems
 - a. Collection systems, trunks, and outfalls
 - b. Treatment plants
 - c. Pumping plants
 - d. Industrial waste
2. Flood Control and Drainage Facilities
 - a. Hydrology and hydraulic design
 - b. Storm drains and appurtenances
 - c. Flood control dams, spillways, channels, and storage reservoirs
 - d. Water conservation and erosion control, debris and detention basins
3. Water Works
 - a. Transmission lines and distribution systems
 - b. Treatment plants
 - c. Well development
 - d. Storage tanks, reservoirs, and pumping plants
4. Highway Engineering
 - a. Alignment and right of way
 - b. Drainage
 - c. Bridges
 - d. Traffic potential surveys
 - e. Foundation and soil analysis
 - f. Pavement design
5. Airfields
 - a. Runway configuration
 - b. Sound suppression and blast protection
 - c. Maintenance and storage facilities
 - d. Pavement design
 - e. Fueling systems and airfield lighting
 - f. Grading and drainage



Left: Domestic Operations Division Chart

Above: Business Development Division Chart

6. Miscellaneous Engineering

- a. Marinas and harbors
- b. Missile facilities
- c. Subdivisions
- d. Aerial photography, surveying, mapping
- e. Soils and foundations
- f. Processing and industrial waste

IV. Systems Engineering

A. Instrumentation Systems

- 1. Design of instrumentation systems for:
 - a. Environmental test facilities
 - b. Missile launch and static test facilities
 - c. Sound attenuation test and laboratory facilities
 - d. Data handling and analysis equipment

B. Communications Systems

- 1. Design analysis of:
 - a. Microwave equipment
 - b. Weapon system, static test, and launch control communication equipment
 - c. Military tactical communications equipment
 - d. Traffic control and dispatch equipment

C. System Integration

- 1. Integration of functional requirements of facilities into planning documents and design criteria

D. Systems Analysis

- 1. Analysis of existing or proposed operating systems to determine optimum design criteria to meet total requirements of the proposed complex

V. Construction Management and Supervision

- A. Preparation of documents
- B. Issuing of drawings and specifications
- C. Analysis of bids and making of recommendations
- D. Preparation and execution of contracts
- E. Surveillance of shop drawings
- F. Approval of materials
- G. Preparation of change orders
- H. Provision of resident inspectors and construction supervision personnel

- I. Surveillance of guarantees and as-built drawings
- J. Recommendations and counsel during construction

VI. Process Engineering

- A. Foods
- B. Beverages
- C. Industrial
- D. General Industrial Chemicals
- E. Military

For projects of such extreme size or complexity that the firm feels it is incapable of handling them adequately alone, DMJM associates itself with other architectural and engineering firms in joint ventures. An example of a project of this type is the Titan missile facility project now being handled by DMJM in joint venture with The Rust Engineering Co., Leo A. Daly Co., Architects and Engineers, and Mason & Hanger-Silas Mason Co., Inc., Engineers and Contractors. Under the terms of their contract the joint venture (known as DMJM and Associates) is furnishing all of the architectural, engineering, and related services for the project other than actual construction.

The Firm's Staff

The firm employs specialists in a great variety of fields. An idea of the breadth of the technical staff (in addition to architecture and building engineering people) may be gained from the following partial list of firm personnel:

Systems Mgrs.	Nuclear Engs.
Systems Engs.	Mechanical Handling Engs.
Master Planners	Aerodynamicists
Civil Engineers.	Physicists
Electronics Engs.	Mathematicians
Process Engs.	Statisticians



One example of the types of projects DMJM gets involved in, in its expanding architectural role, is this study of mass rapid transit requirements for Los Angeles. This sort of project goes far beyond the "single building" concept so prevalent today in architectural practice. Transportation is probably the most important key to the design of a city. Thus, in a commission such as this, an architectural firm has a chance to establish over-all concepts of planning on a large scale, eventually affecting the lives of all who live, work, or visit in the city

Chemical Engs.
Fuel Engs.
Hydraulics Engs.
Pneumatics Engs.
Instrumentation Engs.
Radio Propagation Engs.
Infra-Red Engs.
Optics Engs.
Ultrasonics Engs.
Computer Engs.
Wind Tunnel Engs.

Pipe Line Engs.
Sanitary Engs.
Surveyors
Technical Writers
Airport Systems Engs.
Missile Engs.
Propulsion Engs.
Servo Engs.
Inertial Guidance Engs.
Microwave Engs.
Communications Engs.

contract with the U.S. Third Air Force. This work is concerned with architectural and engineering coordination of all of the Third AF bases in England. The Thailand office has, as its major project, a waterwell drilling and exploration program involving some 335 wells to be drilled in an area of 40,000 square miles. This work is for the International Cooperation Administration. The Guam office is handling a large amount of military housing on the island and complete facilities for a 44,000 kilowatt-net power plant. The Caracas office is designing a submarine aqueduct for supplying water to the offshore islands of Margarita and Coche.

Missiles Systems

As DMJM became more and more involved in the design of missile bases, it became apparent to the firm that it needed to provide itself with capabilities for research and development work in the fields of the missiles themselves and the related sciences. Accordingly, the firm bought an existing company, Systems Laboratories, Inc. This firm performs research, consulting work, and development work in aeronautics, nucleonics, missile systems, automatic control and computer systems, physics, chemistry, mathematics and similar fields.

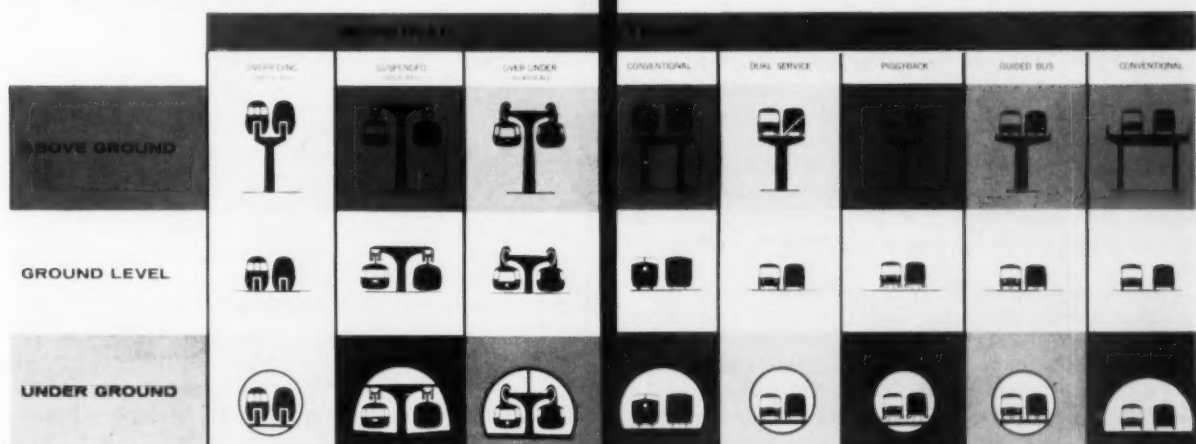
Worldwide Operations of the Firm

While the largest percentage of the DMJM work is in the United States, the firm does projects on a worldwide basis. The foreign offices are extremely flexible. They are set up, moved, or modified in accordance with the needs of the firm at a particular time. At present, foreign offices are located in London, Bangkok, Honolulu, Saigon, Paris, Guam, Djarkata and Caracas. Each of these has a primary reason for being. The London office is of particular importance in the administration of the DMJM

Extra-Professional Activities

Growth of the DMJM practice has brought with it an increasing awareness of, and participation in outside activities by the firm members and employees. Increasingly, it has become apparent that the progress of the organization, dependent as it is on efficient service to its clients, is almost equally dependent on the outside activities of the firm. So DMJM gets itself involved (as a firm and individually) in a great number of civic and other peripheral pursuits. Firm members think these activities add stature to themselves as individuals and help the firm. The activities range from membership in such groups as the American Rocket Society, to full sponsorship of a Space Science Exposition for Explorer Scouts, from A.I.A. and other professional organization activities to the establishment of firm lectureships at colleges and the making of a film designed to stimulate young people's interests in science and mathematics. Activities of this sort round out the program DMJM has set for itself. In this way, the firm and its members become more important and integral members of their communities and of society than would be possible within the strict confines of professional practice.

MASS RAPID TRANSIT SYSTEMS



Judging from the comments of the three firms reported on in the preceding pages, it seems evident that their primary concern is with opportunities in fields broader than those formerly available to architects. In varying degrees, these firms are seeking work which is more complex than usual, larger than the average, and widespread geographically. They are actively engaged in types of work that did not exist a few years ago. In addition to the design and coordinating capabilities of the architects in their organizations, and the technical knowledge of their structural, mechanical, and electrical engineers, these firms offer their clients the services of a variety of specialists ranging from research and development scientists to economists and sociologists.

Certainly, there is some division of attitudes and approach between this sort of thinking and the comments which follow. In the latter, the emphasis is on improvement of the traditional capabilities of the architect, on greater development of these capabilities, within a more limited sphere. Yet the end product in each case is much the same. In the approach of the three, the result will be, perhaps, master planners who will be concerned with man's total environment; in the approach of the dissenter, the result anticipated is a better-functioning architect in the accepted sense of his role. In both approaches, the over-all result should be improved services to the public.

Improvement of Present Services

It seems unfortunate that the phrase "broadening field of service" seems to mean a different thing to each person that reads it. To our firm it does not mean that we are "extending or diversifying" or adding "new specialties." It does mean that we are trying to do a better job on the same kinds of projects that we have been doing in the past. Instead of attempting "to build an organization capable of broad design service," we're desperately trying to build an organization so well coordinated that we can do the jobs we know should be done while constantly narrowing our field of service.

Let me "get down to cases" and report an actual case history that may explain what I'm trying to say better than a general discussion. We have a major department store as a project. It is a part of a regional shopping center. Our preliminary conversations occurred four years ago. At that time we persuaded the owners, the real estate leasing agent, the mortgage brokers, the market analysis expert, and so on that the design of the shopping center must allow for this department store to be constructed in the future. Our sketches for the shopping center showed a normal three story building, with provisions for adding two stories in the department store location. The department store portion of the sketch was only an empty box indicating a very general scheme for the store.

One year ago the leasing agent and the mortgage broker, after months of effort, finally arranged a tentative financing scheme that satisfied all of the involved parties. Our only role in all of this was to vigorously defend the plan against all changes. We refused to "negotiate the lease," "comment on markets," or "argue costs." We're conscious of these factors and must have general knowl-

edge of them, but we feel we must resolutely stay within our own role as architects. We can't reduce the parking area to allow the owner more building area; we can't switch the truck service to reduce tenant costs and thereby wreck the careful separation of store service and customer circulation; we cannot argue the question of the elimination of the third floor household departments because the "area market has moved from a new buyer base to a replacement base." I think my point is clear—we do not try to be all things to all people. We retain our own identity, stay within our own field. We may be referees in some ways; we may have broadened our knowledge of the other fields of activity concerned in this project but we have by no means entered these other fields.

When the actual design of the building finally began, we first spent many hours discussing the departments with the fixture layout and interior designer. Here again we broadened our knowledge of the subject so we could talk intelligently with the interior designer, but we had no intention of "taking over."

Next we had a job conference with the architectural chief draftsman, assigned job captain, mechanical department head, electrical, plumbing and air conditioning designers, structural engineer, etc. Our main purpose was to coordinate these matters at the beginning. Too often the structural engineer says "You draw it up and we'll find some way to hold it together" or the air conditioning engineer says "Please get the building on paper, beams and all, and I'll find some way to get the ducts in." Again, I must point out that we find it a fascinating and difficult enough job to do this coordination properly, just using the old familiar ways without trying to strike off toward new and uncharted seas. Having come to some preliminary conclusions, we then reviewed the whole problem with the tenant's organization, the store maintenance man, the mechanical and electrical men, their chief architect, the fixture layout designer, and, for good measure, several department merchandisers. As we talked with each of these men, specialists in their fields, being careful to stay within the limits of their respective parts of the problem, we may have been referees, with general knowledge of the subjects, but we did not attempt to argue such things as the virtue of an incinerator vs baled waste.

By this time we had a well defined building program. The general contractor (there is a negotiated contract) gave us a memo in which he pointed out those things that would or would not fit into the budgets. Together with the tenant and owner, we adjusted the drawings and outline specifications and finally proceeded with working drawings. After many further minor adjustments, four years after we had our first meetings, the building construction was finally begun.

I have taken so many words to describe a perfectly ordinary, normal project in order to impress you with the fact that I feel certain our future as architects lies not in finding new worlds to conquer but rather in finding the best possible ways to cope with the complications of our well known role. I admit this may not be as exciting as "out of the ordinary" projects, but this is really what we are doing and is our own "Image of the Architect."

Clinton Gamble,
Gamble, Pownall & Gilroy,
Architects

MODERN CHURCHES IN POSTWAR FRANCE

by Peter Hammond

While most architects are familiar with the chapels by Matisse at Vence and Le Corbusier at Ronchamp, not much is known of the vast French program of new church building, reconstruction and restoration since 1950. In this article the Reverend Peter Hammond, author and member of England's *New Churches Research Group*, presents some of the best examples of this current development.

In France, as in many other countries of Western Europe, the decade just ended has been a period of widespread activity in the field of church architecture. Since the early fifties, a vast program of reconstruction has been carried out, and hundreds of new churches have been built to replace those destroyed during the war: particularly in the great seaports and industrial centers, and in areas such as the region around Caen, where the destruction was exceptionally severe. Many other churches have been more or less drastically remodeled or restored, while the liturgical movement has inspired a nation-wide *épuration des églises* the like of which has not been seen since the time of Viollet-le-Duc. During the last year or two, the focus of activity has begun to shift from reconstruction and restoration to the provision of new churches for the densely populated suburbs of the great cities and the vast new housing developments around them. Some extremely interesting work has already been carried out in this field. There is today, what there was not as recently as ten years ago, a substantial body of modern church architecture in France which will richly repay study. With the exception of a few chapels which have been enthusiastically, if not always critically, acclaimed on both sides of the Atlantic, little of this work has yet attracted serious notice in other countries.

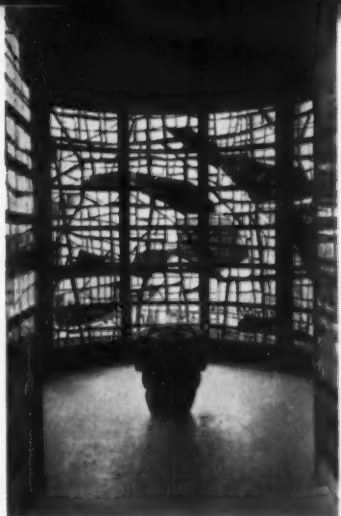
In 1949, there was only one modern church of any real significance in the whole of France: Auguste Perret's *chef d'oeuvre* at Le Raincy, completed as long ago as 1923. Apart from Le Corbusier, who had made few disciples in the land of his adoption, French architecture in general was in a bad way. The modern movement had still to make any deep impression on the dominant late-nineteenth century Beaux Arts tradition of reinforced concrete construction. An architect commissioned to build a church would almost inevitably view his task as one of producing "a fine building," conceived in pictorial rather than functional terms. In France, architecture was still emphatically a fine art. By the late forties, on the other hand, there existed in France an extremely lively school of religious art, which had already done something to divert attention from the architectural sterility of some of the many churches built during the thirties. The so-called *appel aux maîtres* had recently led to the transformation of a somewhat undistinguished pre-war church

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French Churches: Sacré Coeur, Audincourt.

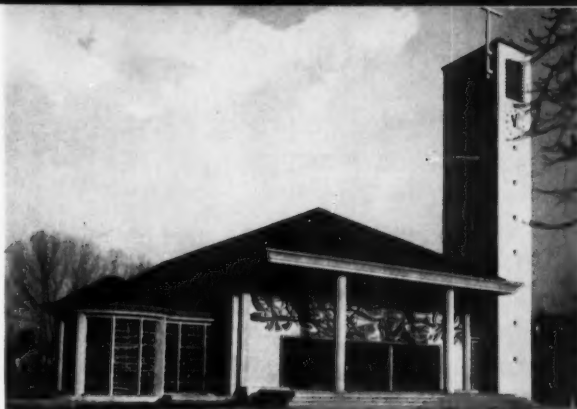
M. Novarina, architect

The most notable feature of this church is a detached baptistery, placed to the north of the building and connected with it by a short passage. Baptistery and passage are glazed from floor to ceiling with panels of glass slabs set in cement. The glass was designed by Jean Bazaine, who was also responsible for the great mosaic over the entrance to the church, and was executed by Jean Barillet. The font, the form of which strikingly expresses its function as the womb of rebirth, was carved from a single block of Volvic lava by the sculptor Etienne Martin



Collection Art Sacré

The church was completed in 1951. The U-shaped plan, large open porch and unbroken band of windows are reminiscent of Fritz Metzger's church of St. Charles Borromeo, at Lucerne, built eighteen years earlier. The mosaic over the entrance to the church is an abstract composition in which the theme of the five wounds of Christ is interwoven with another taken from the prophet Isaiah: 'With joy you shall draw water out of the wells of salvation.' The mosaic was executed in the Gaudin atelier from a design by Bazaine.



The altar, as in so many recent French churches, is a simple table, freestanding to permit celebration facing the people. Behind the altar, and screening the entrance to the sacristy and crypt, is a tapestry designed by Fernand Léger, who was also responsible for the seventeen panels of glass slabs set in cement which stretch round three sides of the church. The subject-matter of the window immediately behind the altar echoes that of Bazaine's mosaic in the porch; that of the other windows is drawn from the Passion narrative in the Gospels. Below the sanctuary is a crypt-chapel, where the sacrament is reserved. The glass in this chapel is by Jean Le Moal. The choir and organ are placed in a gallery at the west end of the church

at Assy by a group of well-known artists which included Léger, Bazaine, Rouault, Lurçat, Braque, Bonnard, Matisse and Richier.

This renewal of sacred art has proved something of a mixed blessing for French church architecture of the fifties. While it has given rise to some outstanding achievements, particularly where stained-glass is concerned, it has also tended to obscure the fundamental problem of modern ecclesiastical architecture, which is primarily a matter of planning and spatial organization. It is significant that the chief interest of most of the churches of the early fifties lies in the works of art which they contain. Novarina's church at Audincourt, near Belfort (this page), and Matisse's chapel for a Dominican community at Vence—both completed in 1951—are landmarks in the creation of a sacred art for our time: their architectural significance is negligible. Audincourt owes almost everything to the glass, mosaic and tapestry of Léger and Bazaine. The other outstanding success of the first half of the decade, the restoration of a church at Les Bréseux in the Franche-Comté, is again due to a distinguished painter, Alfred Manessier. The pilgrimage chapel at Ronchamp, consecrated in 1955, is the first church built in France since Le Raincy which reasserts conclusively the primacy of architecture *vis-à-vis* the plastic arts. Once again the plan, the molding of space, the spirit of order and proportion come into their own. There had been nothing like this for a generation, and the only comparable achievement in French church architecture of the last five years is Le Corbusier's still-unfinished *Couvent d'Études* at Eveux, a few miles west of Lyon (page 198).

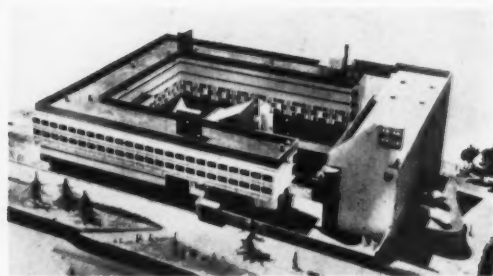
Having said this, I would add that there are several recent churches which, if they will from the point of view of sheer architectural quality scarcely bear comparison with those of Le Corbusier, are in some ways of even greater importance. I have in mind particularly the work of three architects: André Le Donné, Pierre Prunet and Rainer Senn. The problem that these architects have been concerned with is one of creating a building for the activities, both liturgical and extra-liturgical, of a parochial community. Both of Le Corbusier's two churches have a most unusual program. Ronchamp is not a parish church; its program is virtually unique. This elementary fact has been ignored with

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French Churches:
Dominican Priory, Eveux.
Le Corbusier, architect

Le Corbusier's *Convent d'Etudes* at Eveux, known as *La Tourette*, is near L'Arbresle (20 miles west of Lyon on the road to Roanne). The priory is built on a wooded hillside, sloping steeply from east to west. Rectangular plan with an inner court spanned by glazed cloisters. Main entrance on the east side. Corridors, lighted by a continuous glazed strip at head height, extend round three sides of the inner court and give access to the 120 cells which occupy the two upper floors. The cells look outwards and each has its own balcony. Below the cells are the various communal rooms; the domestic offices, heating plant etc. are on the ground floor. The refectory, chapter house, library etc. are lighted by great plates of corrugated glass divided by vertical strips spaced at irregular intervals. Construction is of *béton brut* throughout. The church occupies the whole of the northern wing. It is rectangular in plan and the altar will stand near the center of the building, between the monastic choir and a slightly smaller space for the laity. Within the inner court there is a smaller chapel

J. Cape



Recamier

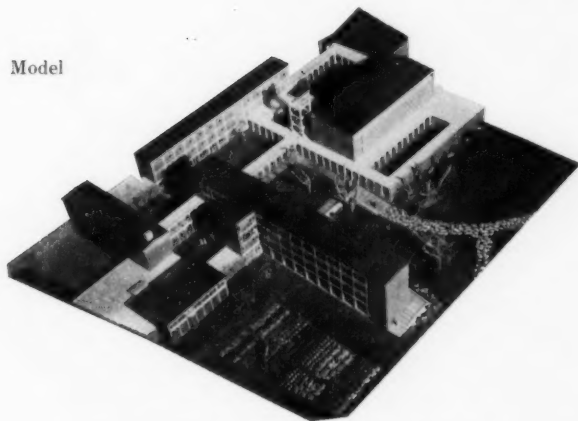


Alison and Peter Smithson

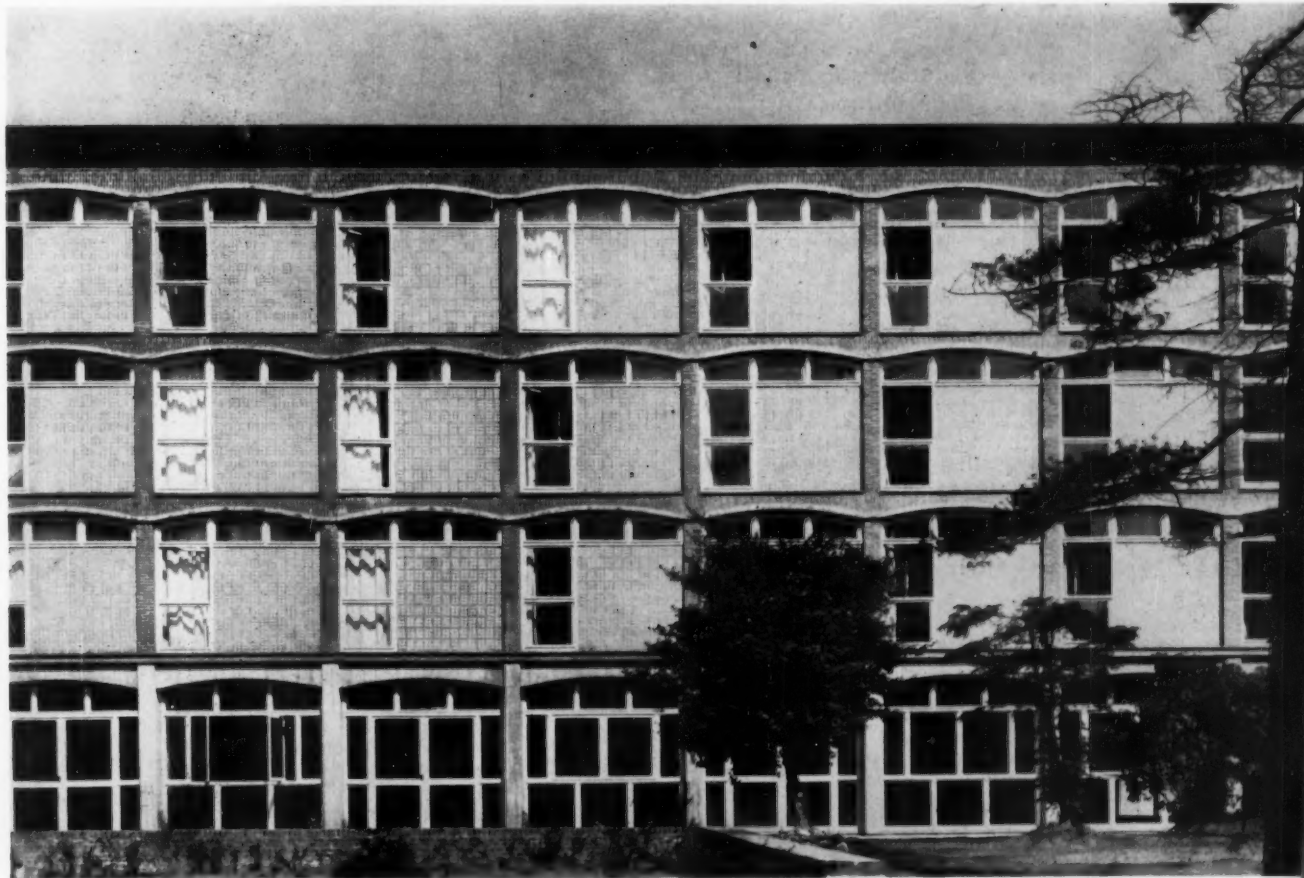
*Dominican Priory, Lille.
Pinsard and Hutchison, architects*

The Dominican priory at Lille is situated in an extensive walled garden in the Avenue Salomon. It is still unfinished, though the church and the principal block containing cells and public rooms were completed in 1958. The architects have adopted the economic methods of construction used in industrial buildings of the region: cross-bearing brick walls, flat brick arches, and lightweight concrete slabs; reinforced concrete is used for larger spans

Model



Caroën



Typical façade

ludicrous results by a whole tribe of lesser architects, who, like so many jackdaws, have carried off from Le Corbusier's isolated hilltop site odd scraps and details which are as meaningless when displayed in an alien environment as they are admirable in their proper context. Ronchamp is an incomparable achievement: it is also unrepeatable. The priory at Eveux does invite comparison with several other recent buildings for religious communities with a similar program. Another Dominican priory, on the outskirts of Lille, where an English architect, Neil Hutchison, has collaborated with Pierre Pinsard, has some sterling qualities; the church is among the most interesting built in France within the last ten years (page 199). A Franciscan friary at Orsay, near Paris, also deserves an honorable mention. Another very remarkable church with a rather special program is the chapel of St. Teresa at Hem, near Roubaix, completed in 1958, where, thanks to the generosity of a Lille industrialist and patron of modern art, Philippe Leclercq, the architect and his team of artists found themselves in the unusual position of not having to worry about financial considerations (page 202). Hermann Baur and Alfred Manessier have together created a building of rare quality, a true union of Swiss architecture and French sacred art, which, all else apart, provides an excellent example of the possibilities of stained-glass and mosaic as integral elements in the total architectural conception. There is no longer, as there was at Assy and to a slightly lesser extent at Audincourt, any question of the architect taking second place, or of architecture serving merely as a frame for the work of a distinguished artist.

But it is when one turns to the best of the parish churches built during the last five years that one becomes aware of the progress that has been made in France since the late forties. It is here that the fruits of several years of continuous debate between architects, theologians, liturgists, pastors and sociologists are most clearly discernible. The churches of Le Donné, Prunet and Senn all reveal a new emphasis on the liturgical function of the church building as a house for the corporate worship of a community: a shelter for a congregation gathered around an altar, rather than an autonomous architectural embodiment of religious sentiment or cosmic moods. They vividly express, in terms of plan-

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René-Jacques



The layout of the church is similar to that at La Tourette, the altar standing near the center of the building, between the monastic choir (see opposite page) and the seats for the laity. The ancillary altars are disposed around the choir and are invisible from the body of the church. There is a separate sacrament-chapel

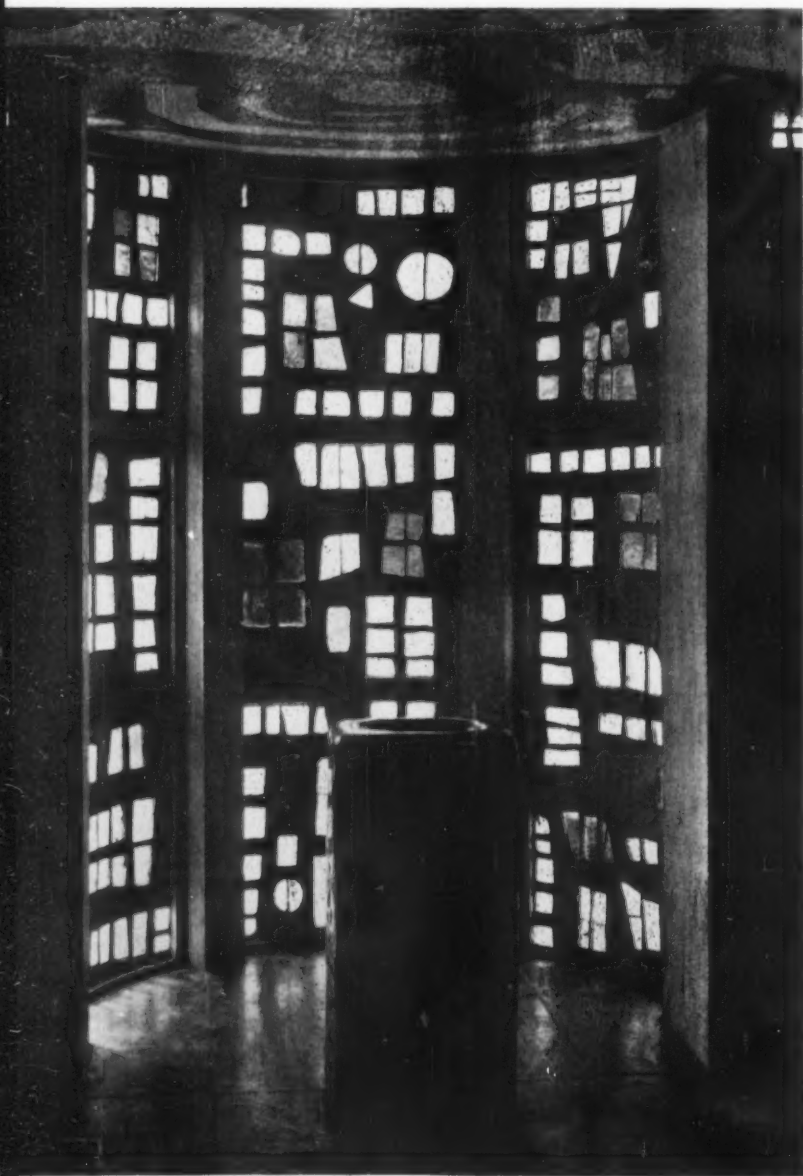
Right: brickwork and concrete are left exposed; the floor is of sandstone and all joinery work is in sipo, a French colonial timber, painted where exposed to the industrial atmosphere. The glass in the church was designed and executed by Gérard Lardeur. The vault is of *béton brut*. Throughout the buildings the emphasis has been placed on poverty, simplicity, truth. The open plan provides the maximum of light and space in the heart of this heavily industrialised region. The setting is in sharp contrast to the wooded hills which surround Le Corbusier's compact, outward-looking enclosure



*French Churches: Ste. Thérèse de l'Enfant Jésus et de la Ste. Face, Hem.
Hermann Baur, architect*

A small chapel in a village between Roubaix and Croix, consecrated in 1958. It was designed by the Swiss architect Hermann Baur and financed by a Lille industrialist, Philippe Leclercq. The chapel is set back from the road beyond a spacious *parvis* flanked by whitewashed cottages. Construction is of brick and there is a detached bell-tower. The north and south walls consist entirely of glass slabs set in concrete. The glass was designed by Alfred Manessier

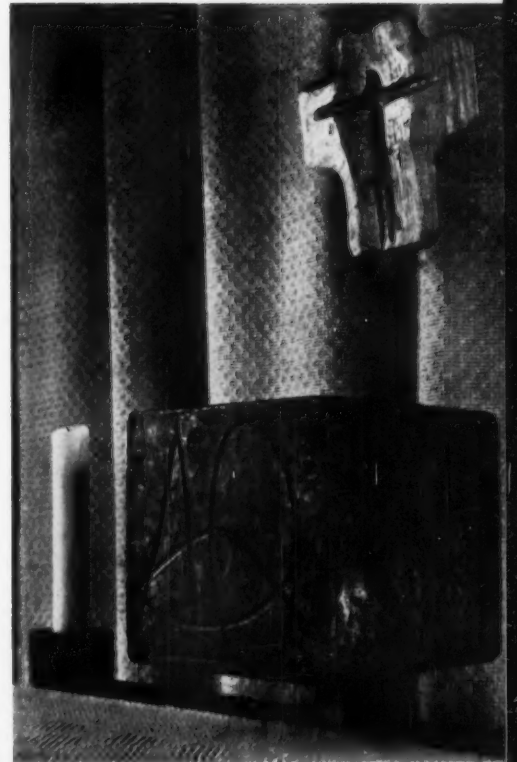
Art d'Eglise





The chapel has an asymmetrical rectangular plan with a sacrament-chapel on the north side. The choir is placed on the north of the sanctuary. The ceiling is of wood and the chapel is paved with dark gray stone from the Pyrenees. The tapestry which hangs behind the altar was woven by the Plasse-Le Caisne family from a painting by Georges Rouault. The altar is free-standing; the cross, tabernacle and communion rail are of wrought iron

Between the aluminum doors is a semi-circular niche containing the *bénitier*, designed by Dodeigne, a young sculptor from Roubaix, who also carved the statue of Ste. Têrèse which stands to the south of the sanctuary. Above the entrance to the chapel there is a splendid mosaic by Manessier. The glass, by the same artist, is among the finest to be seen in France or anywhere else, and is one of the outstanding successes of the last decade



Tabernacle and crucifix by Dodeigne



French Churches: Sacré Coeur, Mulhouse.
A. Le Donne' and M. Patout, architects

A large church, capable of accommodating 1000 people, built on a wooded site in the Rue de Verdun and incorporating an existing chapel (too small to meet the needs of a growing population) and a presbytery. The white marble altar and the narrow band of stained glass in the nave are by Léon Zack; the glass in the lantern-tower is by Janie Pichard; the mosaic pavement of the sanctuary by Irène Zack and the engraved stone in the porch by Véronique Filozof



Guillemot



Narthex and baptistry

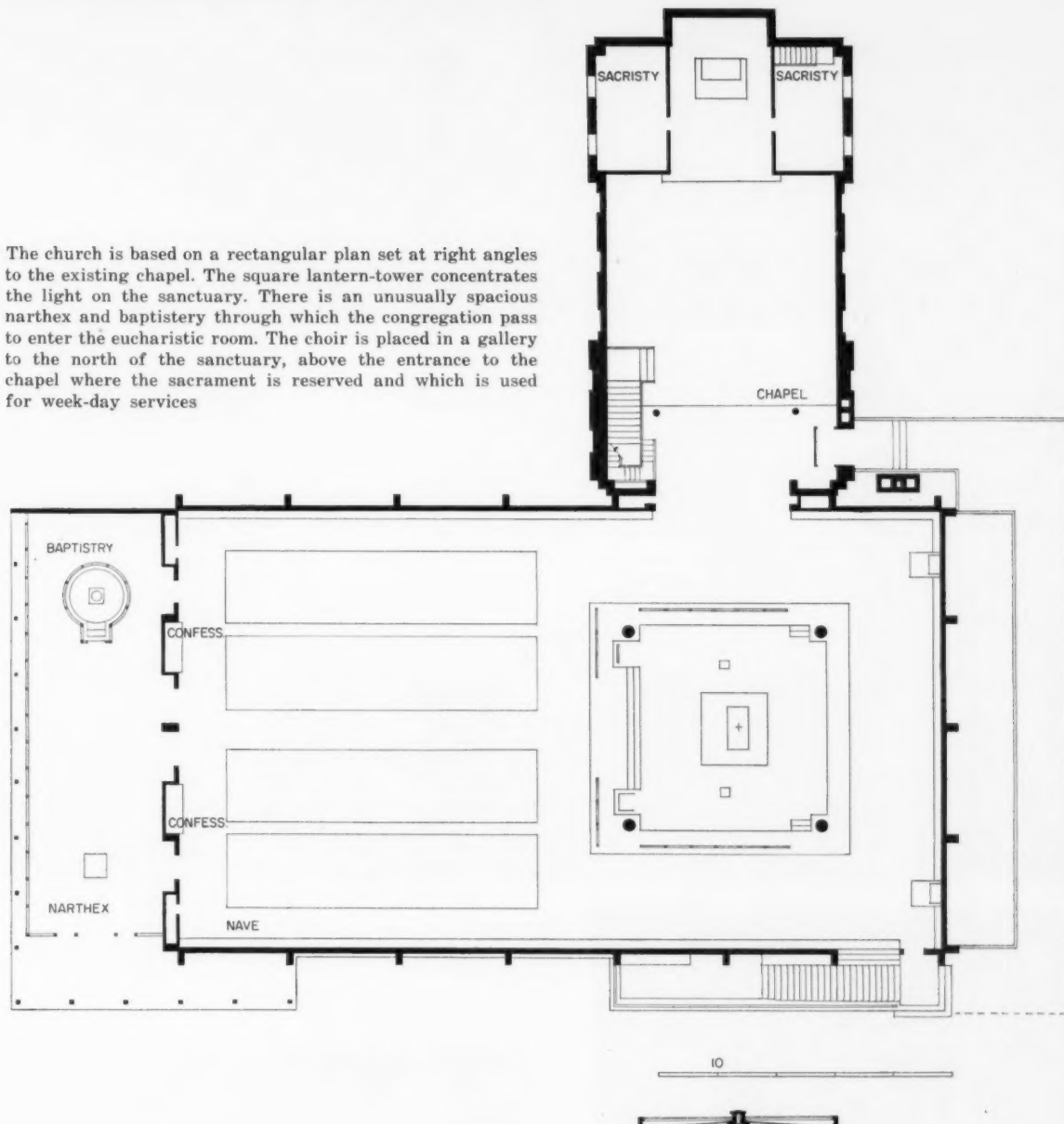


Sanctuary defined by light from tower windows

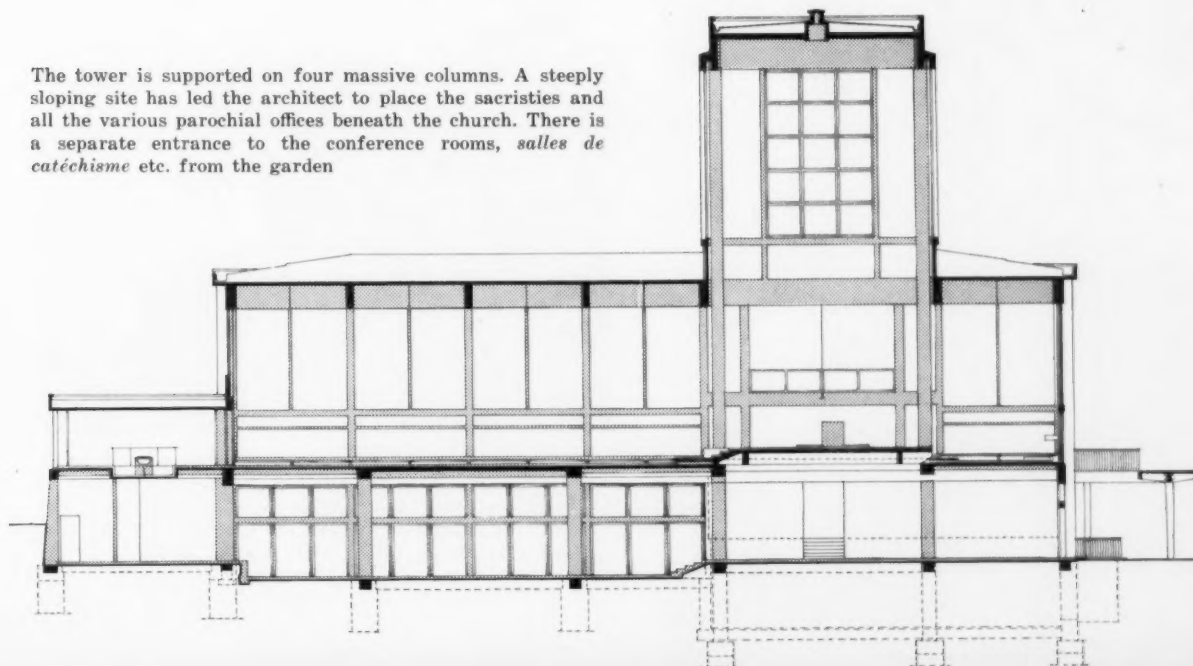


Altar detail

The church is based on a rectangular plan set at right angles to the existing chapel. The square lantern-tower concentrates the light on the sanctuary. There is an unusually spacious narthex and baptistery through which the congregation pass to enter the eucharistic room. The choir is placed in a gallery to the north of the sanctuary, above the entrance to the chapel where the sacrament is reserved and which is used for week-day services

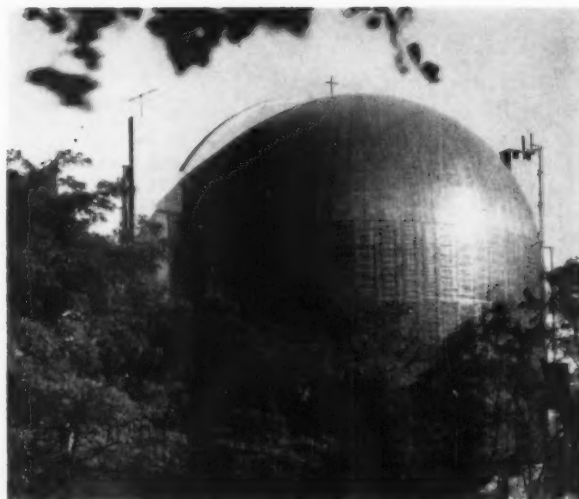
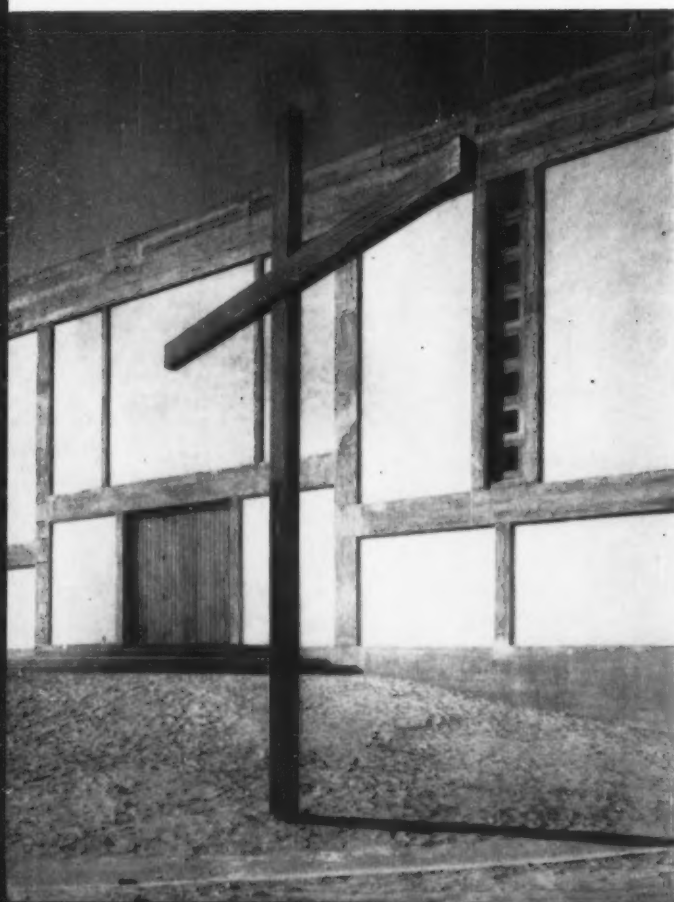


The tower is supported on four massive columns. A steeply sloping site has led the architect to place the sacristies and all the various parochial offices beneath the church. There is a separate entrance to the conference rooms, *salles de catéchisme* etc. from the garden





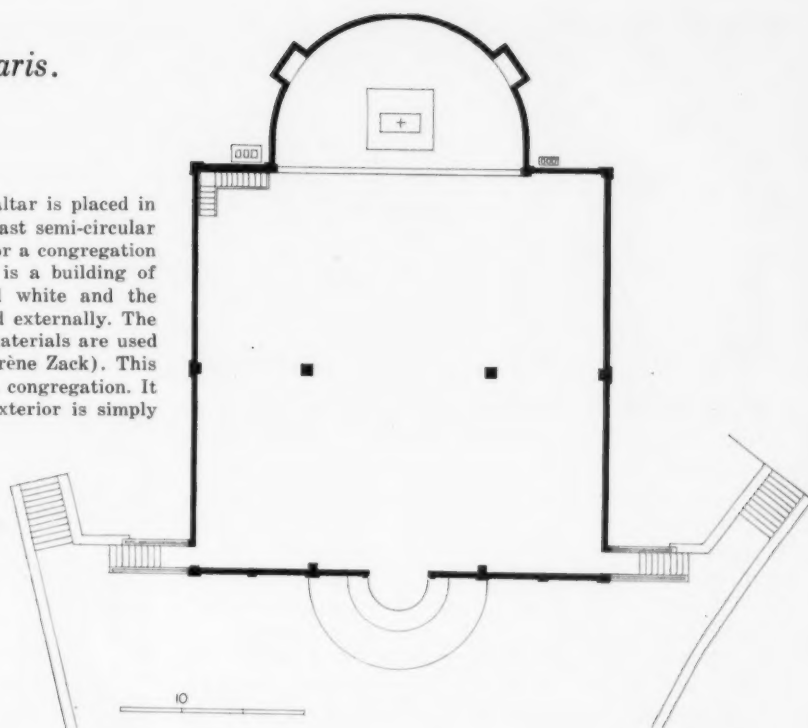
Chevoajón



The apse is sheathed in *vercuivre*—a thin layer of copper on a glass and bitumen base. Below the church there is generous accommodation for parochial activities, including rooms for meetings and classes, and offices and apartments for the two priests on the staff of this newly created parish

French Churches:
St. Claire, Porte de Pantin, Paris.
A. Le Donne, architect

A parochial center completed in 1959. The altar is placed in a spacious apsidal sanctuary lighted by a vast semi-circular window. The square nave provides seating for a congregation of 700. Like the church at Mulhouse, this is a building of extreme simplicity. The walls are painted white and the structure can be clearly read, internally and externally. The church is paved with cement slabs; costly materials are used only for the altar (designed by Léon and Irène Zack). This is plainly a space to contain an altar and a congregation. It is designed from the altar outwards; the exterior is simply the expression of the interior

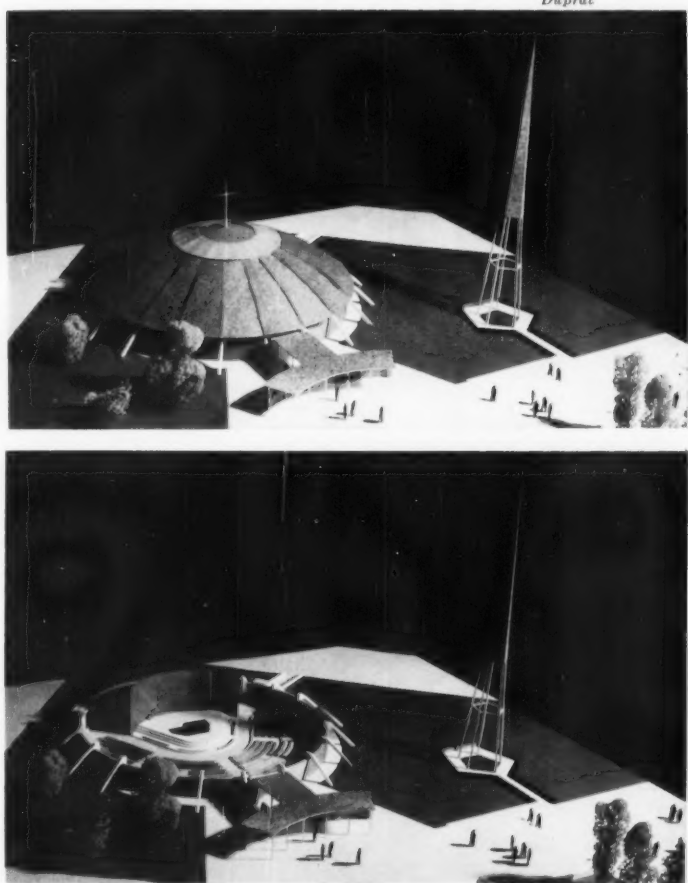


ning and spatial relationships, the recovery within the French Church of a full understanding of the meaning of the Church, its liturgy, and its function in the contemporary world. Just as the medieval cathedral was the outward sign of a particular relationship between the Christian community and society at large, so these buildings are essentially churches for *un pays de mission*, for parishes which are first and foremost *communautés missionnaires*.

Of the three architects whom I have mentioned, only one, André Le Donné, has yet been given the opportunity to produce a substantial body of work; though Pierre Prunet and Rainer Senn both have several churches now in the course of construction or at the project stage. Le Donné's church at Marienau-lès-Forbach, in the diocese of Metz, which was finished in 1956, already displays the characteristics discernible in his more recent churches: a preoccupation with the plan, the possibilities of extreme simplicity, the careful control of light for purposes of spatial definition, and the use of a few works of art of real quality which serve above all to underline the liturgical function of the various parts of the building. What Le Donné is *not* concerned to do is to build a Sainte-Chapelle in reinforced concrete, or to array a once potent but no longer valid symbol in "Contemporary" fancy dress. His characteristic preoccupations are strikingly expressed in two churches completed in 1959—one at Mulhouse (page 204), the other in Paris (page 206)—which will almost certainly rank among the outstanding achievements of the last decade.

Pierre Prunet, whose large square church of St. Anne at Nancy is now nearing completion (page 209), has also been concerned to express, by means of the physical relationship between the ministers at the altar and the rest of the congregation, the theological truth that *all* are active participants in the eucharistic liturgy. At Nancy he has used a square plan, with the altar and font set on a diagonal axis. In another unfinished church, at Auxerre (this page), he has established a similar relationship between altar and people within a circular building. All these churches by Prunet and Le Donné, like the majority of recent churches in France, are in fact parochial centers rather than simple churches.

In the churches and projects of Rainer Senn, a
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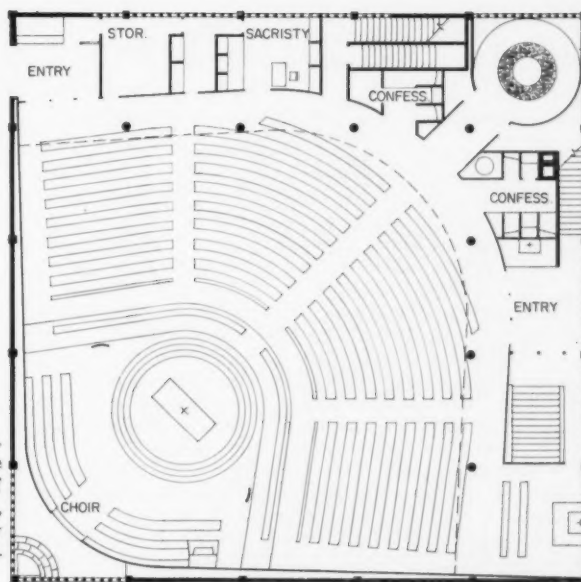


Here the architect has adopted a circular *parti* which makes it possible for the whole congregation to be gathered around the altar within a space unobstructed by columns, while the sanctuary is nevertheless clearly defined within the volume of the church as a whole. This church is now under construction and should be completed in 1961

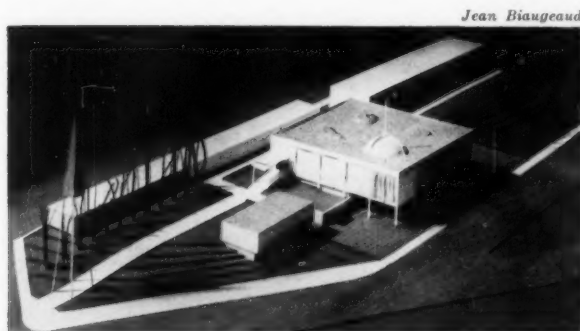


Main entrance façade

*Ste. Anne de Beauregard, Nancy.
Pierre Prunet, architect*



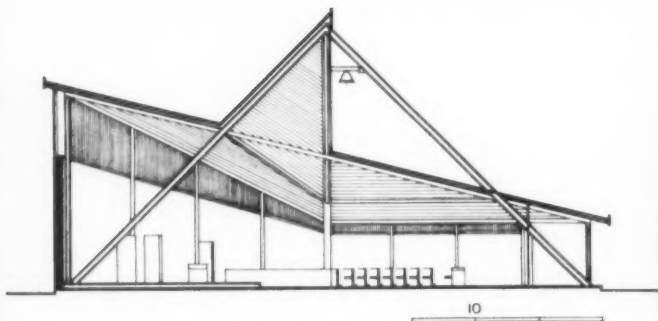
A large square church with a carefully considered program. It will be completed this summer. The altar and font are placed on a diagonal axis; the choir is seated to the east of the sanctuary, which is defined by means of light. Chapels, sacristies, confessionals etc. are placed beneath a gallery behind the congregation, where they do not obscure the primary function of the church for the eucharistic assembly



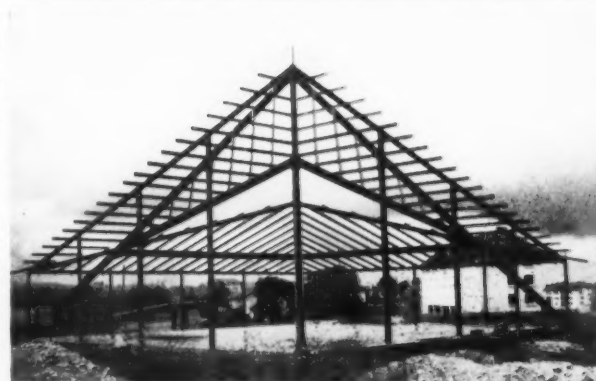
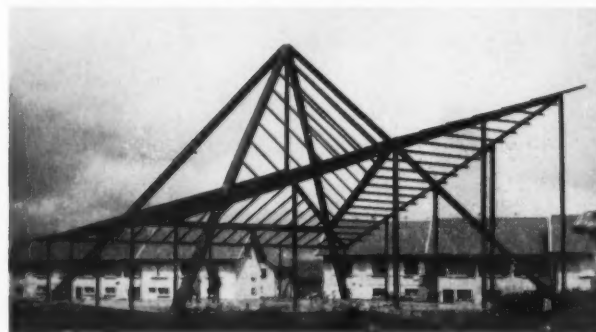
Model

Left: model. The church is situated on the western side of Nancy, where the main road from Toul and Paris enters the town. It is built on two levels, with the various parochial offices on the ground floor. The building to the right of the principal entrance is the presbytery

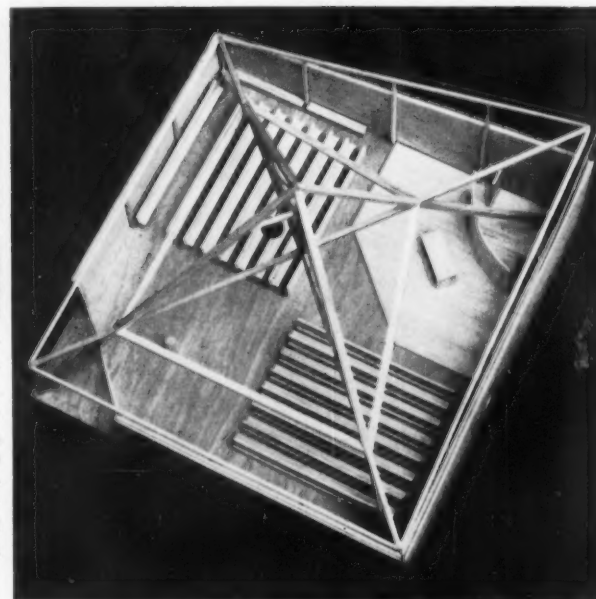
French Churches: Four by Rainer Senn

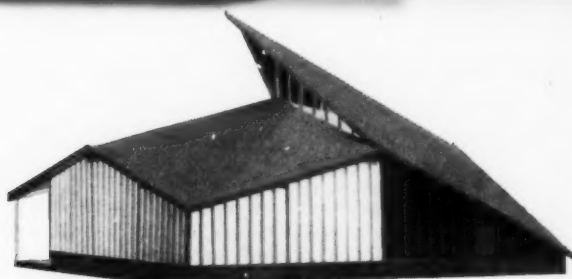


Our Lady of Lourdes, Pontarlier. These churches by Rainer Senn all reveal the same preoccupation with the centralized plan, based on a square, with economy, simplicity of construction and the carefully studied use of light. The recently completed church at Pontarlier, like the wooden chapel near Nice (see below), is based on a square plan with the altar set on a diagonal axis. Construction is of steel, the principal feature being a pyramid of four massive girders. The roof is tilted up along the axis of the building, from the entrance to its highest point above the altar. The sanctuary is defined by the light from a large triangular window. The whole of the steel structure is visible within the church. The timber roof is covered externally with copper, and a bell will eventually be hung just below the apex of the structure. Below the east end of the church, which stands on a sloping site, are the various parochial offices. The total cost of the church was in the region of \$35,000



Chapel at Saint-André de Nice. A wooden chapel built for the Companions of Emmaus, one of the Abbé Pierre's communities of rag pickers, in 1957. Four timber beams span a square and form a pyramid. The altar is free-standing on a diagonal axis. The main source of light is a central lantern, though there are also irregularly spaced apertures in the plank walls through which the sunlight filters into the building. The roof is covered with bituminied paper. An earlier project for a slightly larger chapel, with a sacristy behind the altar (as at Pontarlier), was based on a pentagonal plan





Chapel at Ferrette. A project of 1958 for a timber chapel, to accommodate 250 people. A square plan with a diagonal axis, and a carefully controlled use of light for purposes of spatial definition. An umbrella-like structure, with a single central support for the pyramid of four beams

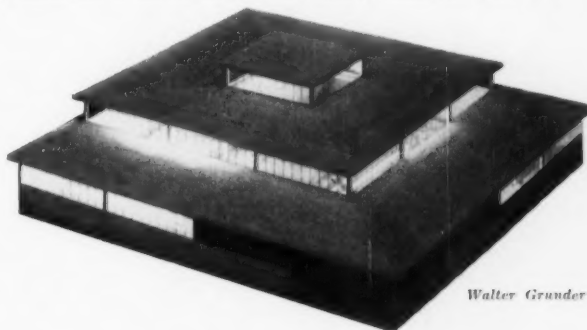
Swiss architect who is still in his twenties, the emphasis on extreme economy and simplicity of construction is particularly marked. His first ecclesiastical building, which dates from 1957, is a square timber chapel for one of the Abbé Pierre's communities of rag-pickers (page 210). It cost approximately \$150 and was built in two weeks by the architect himself and a couple of assistants. Senn has now devoted three years of intensive research and experiment to the problem of designing inexpensive structures which can be built sufficiently rapidly to enable the Church to keep pace with new housing developments. His church at Pontarlier, in the diocese of Besançon, which was completed last September, is a building of quite exceptional interest (page 210). The steel pyramid, which forms the basic structure, was erected in two days, and the church has cost far less than what is customary. Senn has since produced a whole series of projects for new churches in France, ranging from a timber chapel for the Ecole Saint-Exupéry, at Versailles to a large parish church which is to be built at Villejuif, in Paris. Another project, for a prefabricated church large enough to accommodate 800 people, may well provide an answer to one of the gravest problems now facing several urban dioceses, where, as is now commonly recognized, it is urgently necessary to multiply parochial centers on a hitherto unimagined scale if the parish is again to become an effective instrument of pastoral and missionary strategy (this page). There is nothing new about the idea of the *église provisoire*: what is new is the combination of rigorous economy and high architectural quality shown in the churches of this young architect. Senn's work may well prove to be something of a landmark in the development of modern church architecture—and not in France alone. Another church completed last year, which reflects the growing demand for economy and simplicity, is a timber building in the Rue de Chamrousse at Grenoble (page 213). The next two or three years may well see some further experiments of considerable interest in this field to judge by several recent projects for prototype churches which exploit the possibilities of standardization and prefabrication.

The most striking sign of the growing influence of the liturgical movement on church building in France is the great variety of plans now commonly

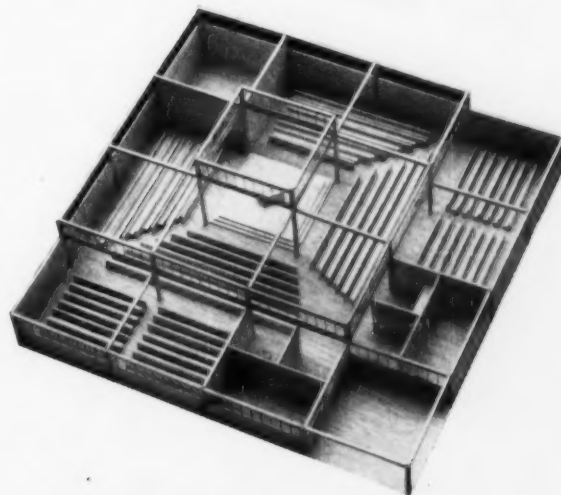
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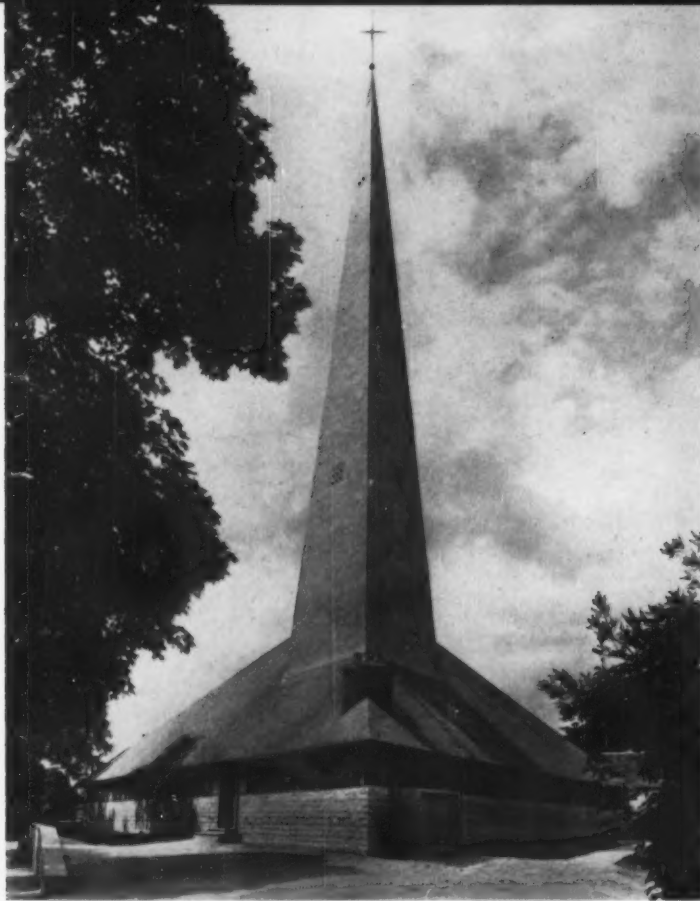
Senn has remarked: "My various projects are based on the same fundamental idea; the church building is the place where a community is formed: a community having a common center. What preoccupies me is the assembly orientated towards this center. This is shown, on the one hand, by the disposition of the seating; on the other, by the way in which I have given prominence to the center spatially and by means of light . . ."



Walter Grunder

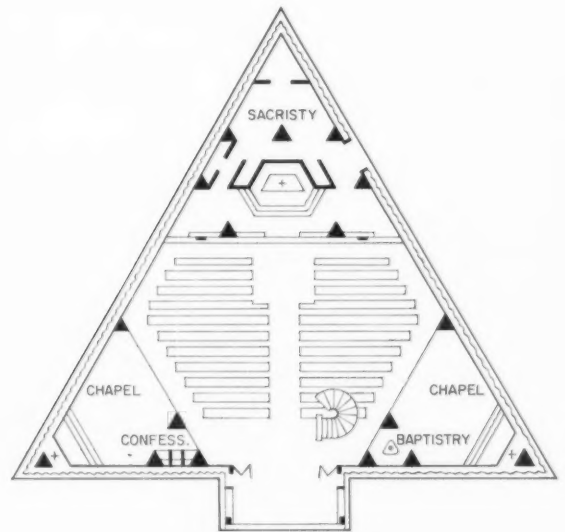


Project for a prefabricated church. A large, inexpensive, easily built prototype church, which could be multiplied with local variations, in the densely populated suburbs and in new housing developments. Steel frame, laminated wood panel ceilings and aluminum roofing are planned. Estimated cost of church, which could provide seating for 800 people, is approximately \$60,000, including furnishings. The structure can be adapted to provide a space containing 520 seats for the Sunday liturgy, together with a small week-day chapel seating 144, and two additional rooms

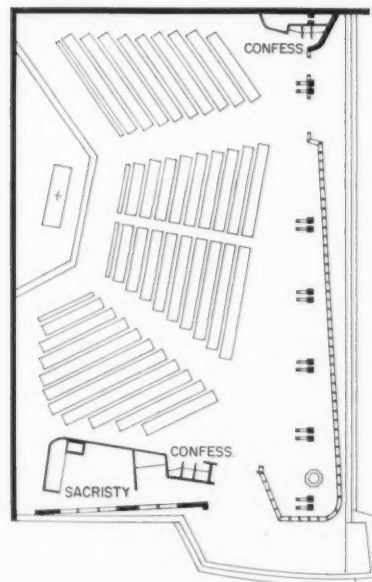


French Churches:
Ste. Agnès, Fontaine-les-Grès
Michel Marot, architect

A small church for a village near Troyes, where the character of the site led the architect to adopt a triangular layout. The triangular spire, immediately above the altar, provides the main source of light. There are secondary altars in the two angles on the base of the triangle, the baptistery is to the right of the entrance, and the large porch contains a gallery for the singers. The wooden detailing of this church is of a quality rarely found in France



Plan, Ste. Agnès

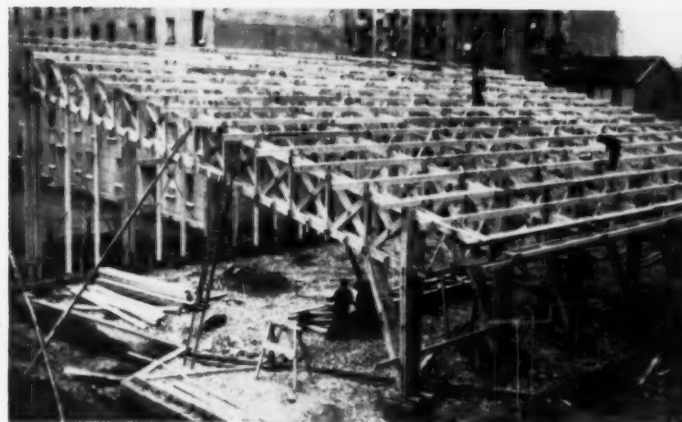
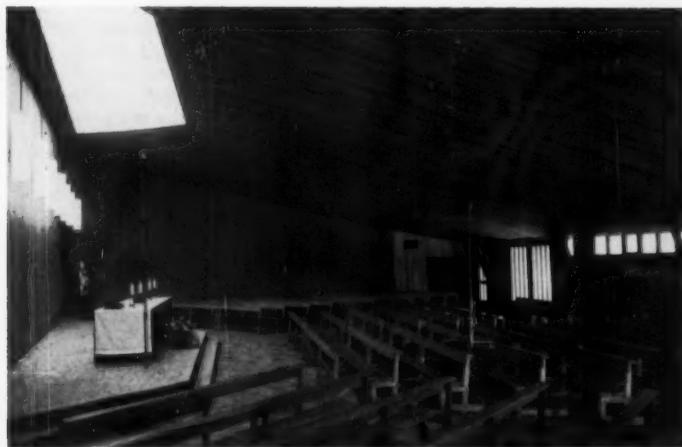


Plan, St. Jacques

St. Jacques, Grenoble. Vincent, Papat, Potié, architects

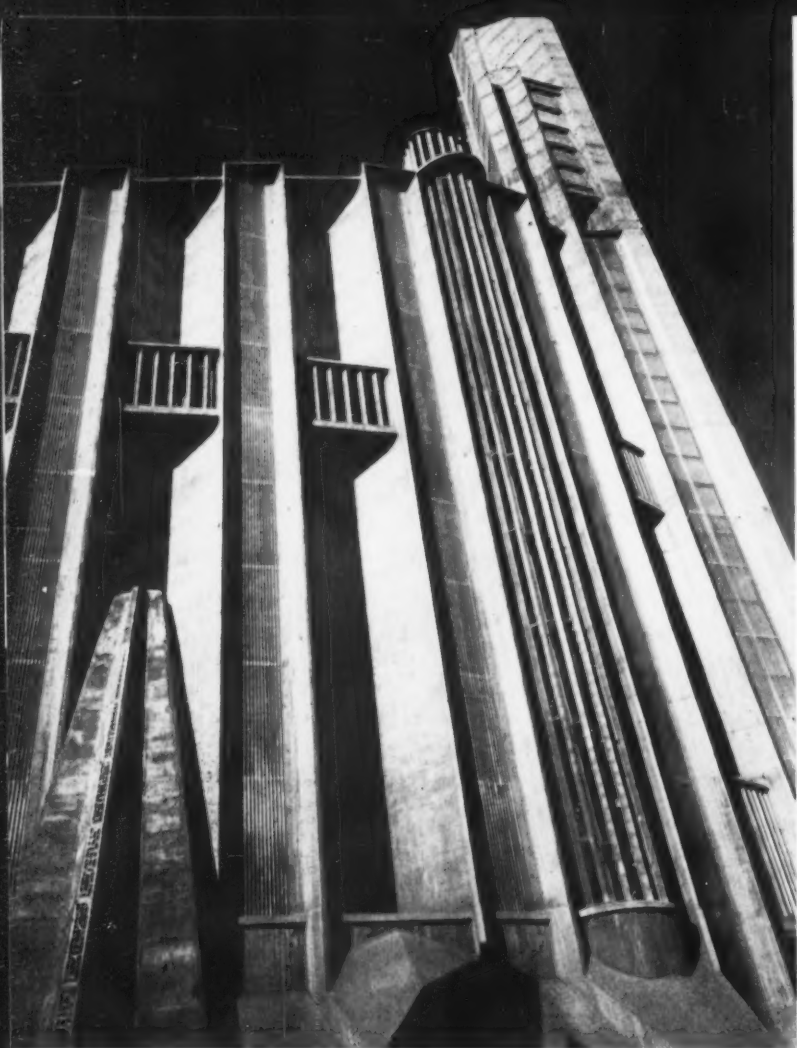
A wooden church for a newly-formed parish which reflects the same preoccupations as are evident in the churches of Rainer Senn. No attempt has been made to dominate the high blocks of flats which surround the church. This is essentially a room for a communal action; the congregation is gathered round the Lord's table which gives the building its *raison d'être*. The principal light-source is immediately above the free-standing altar

V. Rambaud



adopted for a new church. Long narrow churches with the altar at the east end are becoming increasingly rare. Instead, we find architects experimenting with alternative types of layout which stress the fact that the eucharist is a communal act, not something performed by professional actors on behalf of a passive congregation. In many of the churches built since about 1955, the seats for the laity are placed on three sides of the sanctuary, while the celebrant and his assistants face the people across a free-standing altar. There are a few recent examples of circular or octagonal churches with a central altar, as at Holtzwihr, near Colmar. Other plans based on the square, the ellipse, the circle, the trapezoid and the hexagon are now common. One of the most successful village churches of the last decade is Michel Marot's triangular church of St. Agnes at Fontaine-les-Grès, a few miles north of Troyes, where the peculiarities of the site led the architect to adopt a layout which is unique in France (page 212).

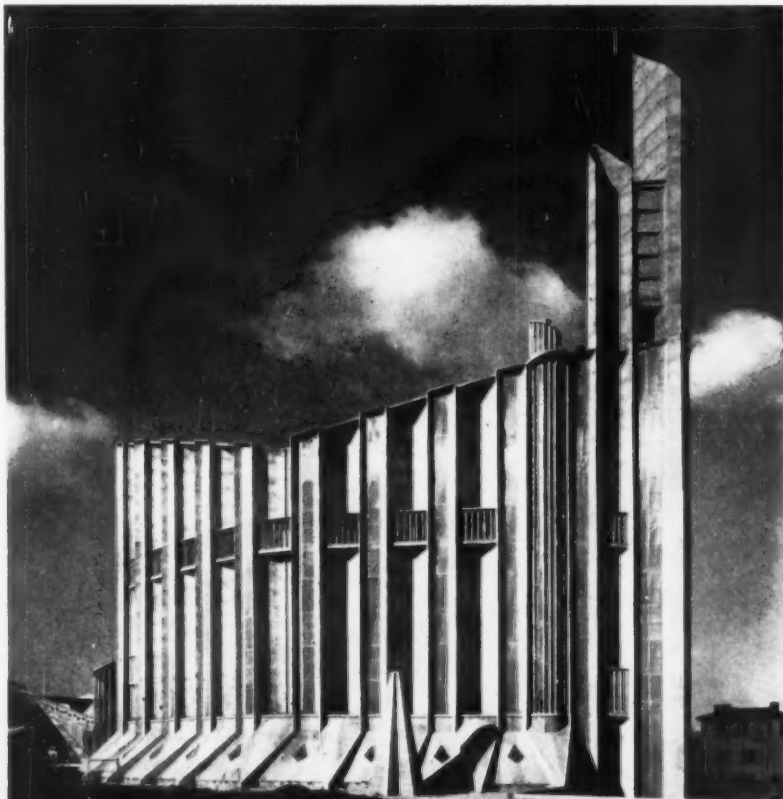
There is one further category of new churches which suggests preoccupations of a rather different kind from those I have mentioned. It includes several of the most ambitious buildings of the decade. The most spectacular of these churches is Auguste Perret's St. Joseph du Havre, which dominates the reconstructed harbor area of the town. This extraordinary building is apparently a development of a rejected project of the twenties. Today, in spite of its immense technical virtuosity, it is something of an anachronism. But the desire to exploit the potentialities of new structural systems in the creation of familiar effects has still to be reckoned with in France—at any rate when the necessary resources are available. Guillaume Gillet's remarkable church at Royan seems to me to belong to this category (page 214). From the point of view of pure structure this is a fascinating building, but I do not think it adds anything of importance to the debate which has been going on since the twenties; the real problems of modern church architecture are of a different order altogether. As Paul Wininger has remarked, in an important book *Construire des Eglises*, it may be shocking to ecclesiastical sensibilities to multiply prefabricated chapels within ten kilometers of Notre-Dame; the fact remains that those ten kilometers "represent the whole distance between the beginning and the end of a world." The text continued on page 216

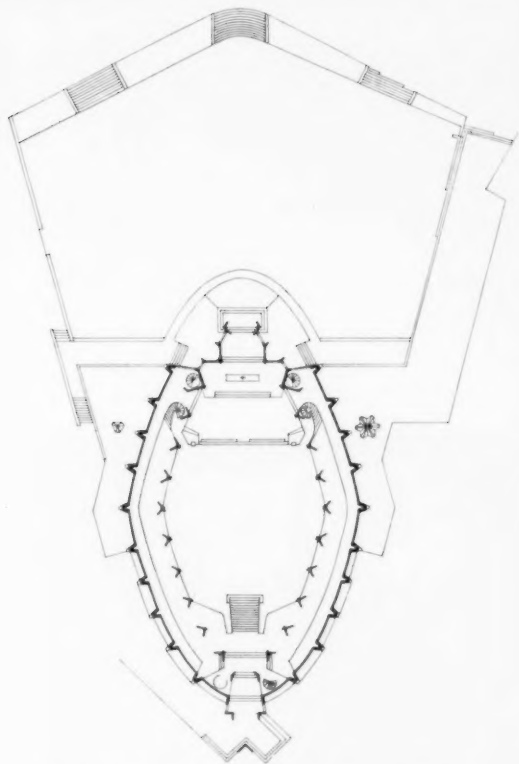


*French Churches:
Notre Dame de Royan.
Guillaume Gillet, architect*

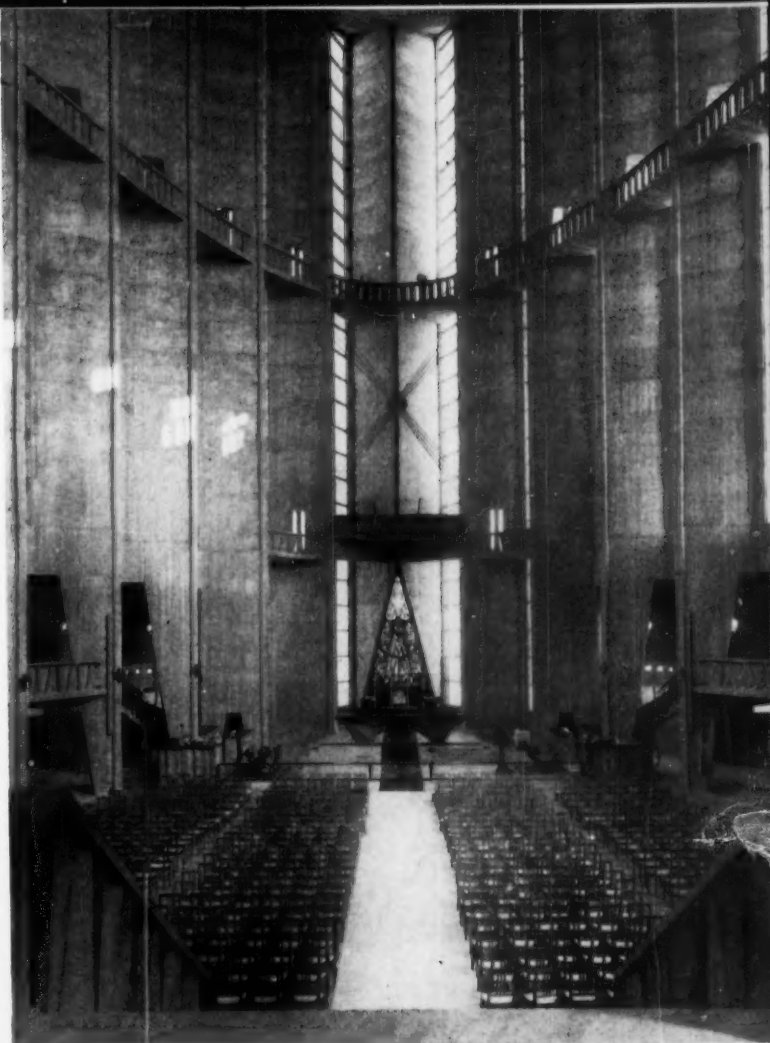
A spectacular church which towers above the reconstructed sea-front of this bombed resort on the Gironde estuary, like Perret's church of St. Joseph at Le Havre. The church will ultimately form the dominant element in a complex of buildings comprising a complete parochial center and including a school and a presbytery. To the east of the church an extensive *parvis* makes it possible for mass to be celebrated at an outside altar during the summer months, when the town is crowded with visitors. The tower at the east end rises to a height of 185 above the *parvis*

The architect and his consultant engineer, René Sarger, have sought to exploit the possibilities for church building of a type of structure first evolved by a French engineer, the late Bernard Lafaille, for industrial use: in particular for the locomotive sheds of the French railways. This consists of a series of V-shaped members in reinforced concrete, the intervening spaces being glazed to give a very strong vertical emphasis, both externally and internally

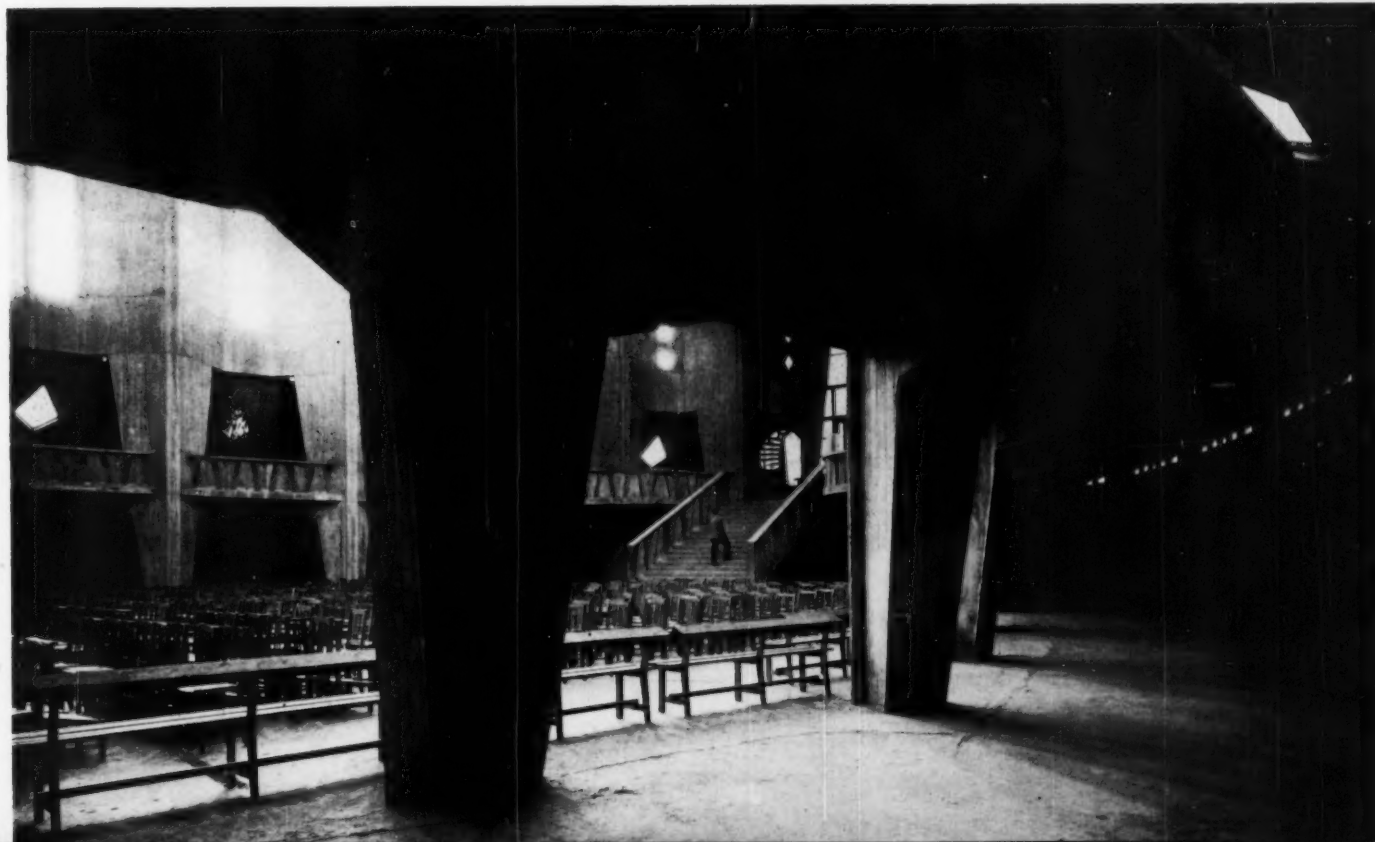




Notre Dame de Royan is one of several recent churches in France the plan of which is based on an ellipse, orientated on its long axis. The site slopes fairly steeply from west to east, and from the main entrance at the west end one descends to the nave by a broad flight of steps. The church forms a vast oval space, 115 high and completely unobstructed by columns. Around the church there is a wide processional way. To the south of the sanctuary there is a detached baptistery



Studio Jean-Pierre Dumont



cathedral symbol is irrelevant to a Church which finds itself increasingly in a missionary situation *vis-à-vis* the community as a whole. We need an entirely different type of building, the form of which must spring from the liturgical, pastoral and missionary demands of our own generation.

No account, however cursory, of what has been accomplished in France during the last ten years can ignore the immense work of remodeling and restoration carried out since 1950, though it is impossible in the space of a brief article to do more than mention a handful of outstandingly successful examples. I have already referred to Manessier's glass at Les Bréseux, which is among the finest in Europe. The same artist has recently completed another splendid series of windows for an exemplary reconstruction of a medieval chapel at Pouldu, in Brittany. André Le Donné's remarkable transformation of the church of our Lady of the Rosary at Le Havre (page 218) shows what can be done, even with unpromising nineteenth century material. At La Besace, in the Ardennes, a modern nave and baptistery have been added to a twelfth-century chancel (page 217). The furnishings and glass by Pierre Chevalley are typical of a great deal of work now being done in France, much of it by young and comparatively unknown artists and craftsmen. A group known as *Les Artisans du Sanctuaire*, founded in 1952 by François Basseville, has been responsible for some admirable restorations during the last few years, particularly in Alsace. Among established artists, Léon Zack and Maurice Rocher have made some impressive contributions to the restoration of old churches, as well as to the building of new ones; Georges Braque has designed some windows for a chapel at Varengeville; and, improbable as it may seem, even Jean Cocteau has now been pressed into service as a mural-painter. Just across the Swiss frontier from Audincourt, the church at Courfaivre, near Delémont, now contains an important series of windows by Léger (page 217), as well as a Lurçat tapestry. The *Salon d'Art Sacré*, held annually in Paris, continues to provide abundant evidence of the renewed vigor of French sacred art. What is now also clear, as it was not ten years ago, is that French church architecture is beginning to show comparable signs of renewal. The next decade may well prove remarkably interesting.



Window by Léger in the church at Courfaivre

Glass by Pierre Chevalley in the twelfth-century chancel at La Besace



Agnes Varda

Modern baptistry at La Besace

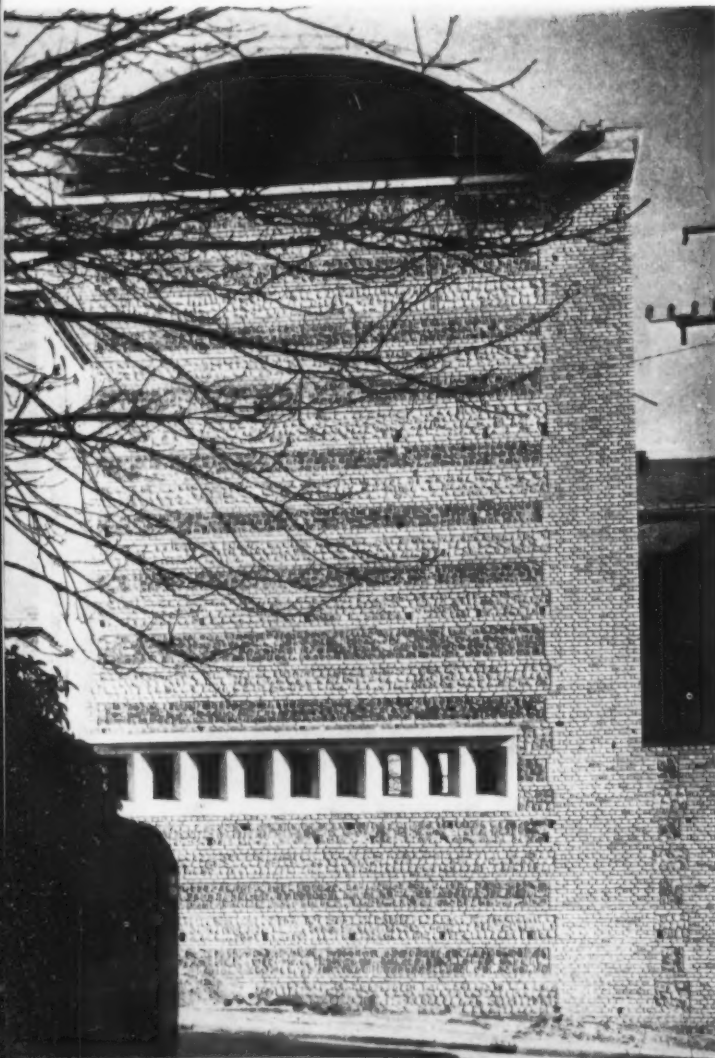
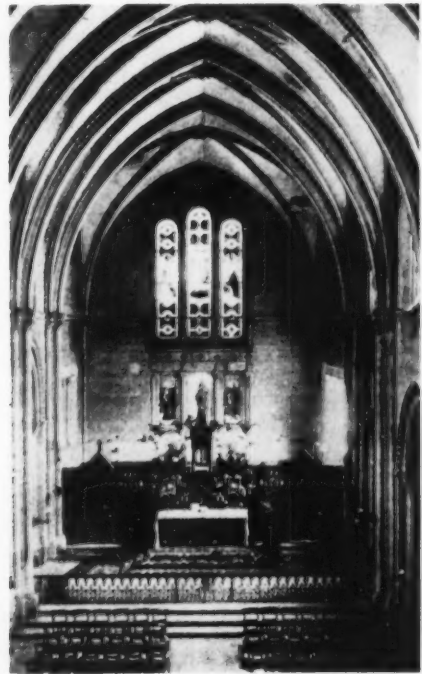


La Besace. A good example of the restoration of a village church, the eastern part of which dates from the 12th century. To this has been added a new nave and tower by the architects Eugène and Claude Scherrer. The whole church has been refurnished by Pierre Chevalley. The altar and font are of black granite, the tabernacle and font-cover of lead, the altar cross of wrought iron. The chancel windows are filled with unassertive modern glass which blends admirably with the medieval architecture. The whole church has been repaved in sandstone

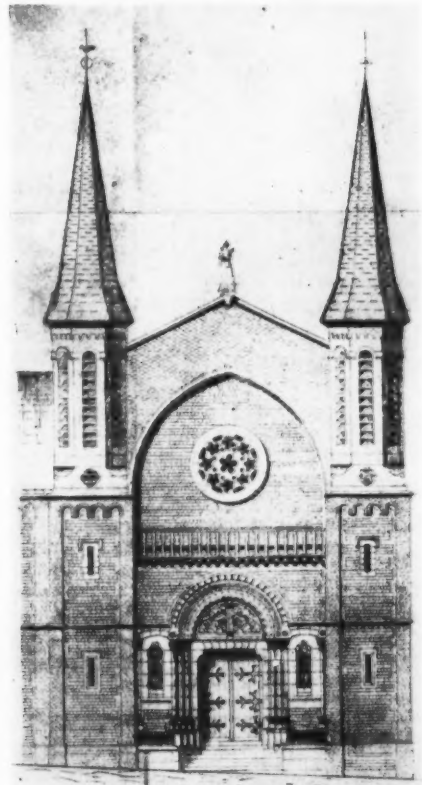
Courfaivre. In 1953-54, an 18th century village church a few miles from Audincourt, across the Swiss frontier, was enlarged and restored by a local architect, Jeanne Bueche. In addition to a tapestry by Lurcat, the church contains a considerable quantity of glass designed by Fernand Léger. In the nave there are ten panels which form a continuous band on either side. *The Marriage at Cana* (see opposite page) is on the south side of the altar



French Church Restorations



Cherbourg



Our Lady of the Rosary, Le Havre. André Le Donne's spectacular transformation of a damaged neo-Gothic church. The existing shell has been re-roofed with a simple reinforced concrete vault, and the orientation of the building reversed so that one descends into the church from the sanctuary

LIGHTING FOR ARCHITECTURE

Ask any architect what's wrong with architectural lighting and you'll hear something like this: "Engineers are insensitive to design and wedded to their handbooks." Or "Manufacturers don't supply the right kinds of equipment." ■ Then come the rebuttals. "Architects don't know what they want." "Engineers are not supposed to be architectural designers: their job is to execute the architect's designs." "Manufacturers already produce an enormous variety of sources, and will add to their lines any other item there is a demand for." ■ So there the lighting problem stands, shifting in focus according to who defines it. We feel it's time to stop discussing it and start solving it. ■ We also feel that the initiative must come from the architect. Only he can assume the responsibility for the building as a whole—for the lighting no less than for the structure or the space itself. If he knows the principles of lighting well enough to clearly define his lighting objectives in the context of the total building concept, and to clearly convey them to the engineer who will execute them, he need not be cowed by the dicta of the handbooks. He can rely confidently on his own design sense, which may, in many situations, be more applicable than a too strict adherence to standards that consider "how much" but seldom "how" and almost never "why." He can even break the rules—but only if he understands the principles on which they are based, and the range of their validity. ■ The four-part series that begins in this issue will give him that understanding.

LIGHTING: 1 DESIGN OR ACCIDENT?

Too often, the answer is "accident," but as this article points out, it need not be. The light we see is also seen by us, and it produces predictable visual effects. This

discussion shows how these effects can be "designed" to achieve positive goals—or allowed to "just happen," with results that may be as unfortunate as they are unexpected.

THE LIGHTING PROGRAM: 2 THE RIGHT LIGHT IN THE RIGHT PLACE

By outlining the many "dimensions" of light that must be understood if natural and artificial lighting are to be integrated with the building design, this article lays the

groundwork for programming lighting that will not only meet minimum seeing requirements but will also assure visual comfort in viewing our tasks and our surroundings.

THE LIGHTING SYSTEM: 3 FIXTURE FACTS AND BUILDING FACTORS

With the stage thus set, this article translates the program requirements into concrete terms. A practical guide for achieving desirable brightness patterns as well as re-

quired quantities of light, it discusses the characteristics of light sources in terms of their relationships to room size and shapes, materials, and structural features.

THE LIGHTING DESIGN: 4 PROBLEM, PROGRAM AND PROCEDURE

This casebook presents, through specific examples, a suggested procedure for executing the lighting design from start to finish. It shows how to approach the problem;

how to set up the program; how to use study sketches in evaluating alternate solutions; and how to represent the final lighting design in meaningful graphic terms.

Lighting: Design or Accident?

- a. Light to See By: Enough Light for the Purpose
- b. The Light You See: Lighting for Mood or Atmosphere
- c. The Light You See: Lighting for Emphasis or to Direct Movement
- d. The Light You See: Lighting to Express Intended Use
- e. The Light You See: Lighting to Complement Structure
- f. The Light You See: Lighting to Modify the Appearance of Space
- g. The Lighting System: How to Achieve the Lighting Objectives

The years since Edison have brought architects, quite literally, more light than they know what to do with. After centuries of painstakingly and often ingeniously manipulating our buildings to suit the vagaries of natural light, we find, paradoxically, that we have very little aptitude for manipulating our new wealth of artificial light to suit the vagaries of our buildings.

When all buildings were designed around a single, fixed light source, the sun, the difference between great architecture and mere building could be measured to a great degree by the skill with which that source was used. The shapes and sizes of the rooms, and the materials and details in them, were determined largely by the appearance the room would take on when rendered by daylight. Light was not always simply applied to structural innovations: more often, the structures themselves were de-

a. LIGHT TO SEE BY: ENOUGH LIGHT FOR THE PURPOSE

The first step in achieving positive lighting is, quite logically, to provide *enough* light. This meets the basic physical requirement: light to see by as distinguished from light you see.

The difference? When you turn on headlights of so much candlepower, you get a proportionate number of footcandles on the road ahead—enough to see a man walking across it. If the road is black and there is no man, you actually see no light at all on the road itself. If the road is white, you have the same amount of light to see by, but you also see the light from the headlights reflected off the white pavement.

The physical requirement, then, calls for enough light, without distraction and with appropriate direction and diffusion, to enable the

building occupant to do the work expected of him. This is a fairly simple requirement, but within its general framework, the precise amount and placement of light (not fixtures) may vary widely according to the demands of the task.

For desk work in classrooms or general offices, for example, the requirement would be for a relatively high horizontal footcandle level throughout the room—other factors being equal, as high as can be afforded. The light should be relatively diffuse, with minimum distraction from the light sources. The reduced visibility resulting from reflected glare, which is a function of the relative position and brightness of the source, should also be considered.

The same requirements would apply to work at an individual desk in the home study or in a private office, but—and it is an important “but”—they need apply only to a limited area of the room. It would be wasteful at best to light every square foot of a large executive office to the level

required to read a fourth carbon.

For most visual tasks, the light should be directed on a horizontal work plane, but not for all of them. Looking at pictures in a museum or gallery calls for illumination of vertical planes, and a uniformly lighted floor is of little help. The same is true of shaving or applying makeup at a mirror, where the need is for a relatively high level of illumination from the front. In this case, uniformity is more important than quantity.

If we consider the light needed to see other cars and objects while driving through an underpass or tunnel, we begin to see how factors other than the amount of light provided can influence the ease with which we see. In a tunnel, as in a corridor, the actual seeing requirement is minimal—only enough light to see large objects is really essential. But the eye's adjustment from daylight to the lower light level in the tunnel becomes a factor. The light level at the tunnel entrance may have to be higher than would otherwise be strictly

by William M. C. Lam, Consultant: Coordination of Lighting and Architecture

veloped to make possible desired lighting and spatial effects.

Now, finally, we have artificial sources which are not only easier to control than daylight, but can also light interior spaces far more brightly. Theoretically, the possibilities for imaginative lighting are limitless. And, theoretically, our ability to create great architecture should have increased in proportion to the availability of more, and more versatile, artificial sources. Yet we have scarcely begun to scratch the surface of those "limitless" possibilities.

In a very real sense, architectural lighting is suffering from an embarrassment of riches. There are too many choices—bad as well as good. First, there are the basic choices between the various possible patterns of light and the endless ways in which they and the building can relate to and modify each other. Then there remain the choices between the

thousands of lighting fixtures with which these patterns can be produced.

Small wonder that architects yearn for the commercial availability of techniques like electroluminescence, which they feel will eliminate the choices and let the building light itself. But buildings will not be self-illuminating in the near future, and even when they become so, the choices of lighting patterns must still be made. They can be made more logically if we remember that the selection of a lighting system is a basic design choice, and that as in any other kind of broad planning—city planning, foreign policy or whatever—there must be an orderly process of decision making.

To get the full potential from artificial lighting in a building, decisions must first be made on the desired patterns of light and on schematic ways of achieving them. Then decisions can be made on actual

equipment and other design details. But the details must follow the design, just as in any other phase of architecture. If we start with the electrical layout and the selection of lighting fixtures, there is no design at all, only details, and the results—good or bad—are accidental.

In at least one aspect of lighting design, this is clearly understood. Although windows are basically light sources, the designer is concerned first with their size and placement in relation to the use, surfaces, volume and structure of a room, and only then with the glass area (or luminous surface) and the sash details. No architect allows an engineer's apprentice to select the windows for a room and arbitrarily place them "eight feet on center." But he often allows the lighting—which will in the end determine the total character of the room—to be "designed" in just that way.

necessary (e.g., at night), and bright walls may become more important than any number of footcandles on a

dark pavement—particularly when the psychological factor of reducing claustrophobia is considered. Thus,

as is often the case, the light that you see begins to take precedence over the light you see by.



While many areas, like classrooms, call for light on a horizontal work plane throughout, good horizontal lighting does not meet every seeing requirement: a museum needs maximum light on the walls, but very little on the floor

b. THE LIGHT YOU SEE:

LIGHTING FOR MOOD

OR ATMOSPHERE

Although the lighting designer's first goal is to provide enough light to see by, he must also provide it in such a way that the light seen encourages the occupants of a room to use the space as intended. Since it is based on the human reaction to the light patterns set up, and their relationship to the colors, textures and shapes of the room surfaces, this might be called the psychological requirement for lighting.

One of its more important aspects is the establishment of a mood appropriate to the purpose for which a space is to be used. Because "mood" is the result of a subjective response, it is difficult to define in how-to-do-it terms. It can, however, be planned

within fairly close limits if it is consciously considered as one of the lighting objectives.

We know for example that the colors, the ornate patterns, and the movement of the lights in an amusement park are major factors in producing the desired air of excitement and gaiety—and that New York's Times Square is a very different place at midnight than at noon.

We know also that high contrast lighting has a "feel" different from that of low contrast lighting; that even, glare-free, comfortable lighting may produce an atmosphere of efficiency or of luxury; and that harsh glaring lighting, which would be uncomfortable in a factory or cheap in a store (where it would also communicate cheapness to the merchandise), may be highly dramatic in a theater.

This concern for establishing mood through lighting may at first glance seem applicable only to

churches and night clubs, but it is equally applicable to offices and factories. Any good personnel man will confirm the fact that the desire to perform may be as important as the ability to do so.

It should also be remembered that lighting always establishes a mood—whether or not the mood is planned. Colors and materials contribute of course, but even the most luxurious finishes and furnishings can be washed out or cheapened by the wrong kind of light, or made still more inviting by the right kind. No matter how cheery a hospital room may be by day, harsh lighting can make it a dreary cell by night.

Mood-setting should not be allowed to just happen. If it is not predetermined by a careful study of the lighting in relation to the other aspects of the room, any resemblance between the room as it is and the room as it was meant to be will be purely coincidental.

C. THE LIGHT YOU SEE:

LIGHTING FOR EMPHASIS

OR TO DIRECT MOVEMENT

Almost as widely applicable as light's ability to define the character of a space is its ability to direct attention, and thus, if movement is called for, to guide that movement. We are all familiar with this psychological effect of light, though we may not always recognize it in an architectural context: the "name in lights" on a theater marquee is more obviously designed to attract attention than is a brightly lighted store.

Orderly rows of street lights clearly guide movement down a dark street, while a haphazard arrangement of lights in a parking lot can cause traffic jams with only minimal help from drivers. However, it should not be assumed that linear rows of light are necessarily the best solution. At a gas station their directing qualities may be very useful for aligning the flow of traffic alongside the pumps—the light directs the customer without requiring of him a conscious decision on where to drive. On the other hand, many architects object to a linear sequence of lights down a long corridor, because here the psychological effect is undesirable—one should feel free to meander.

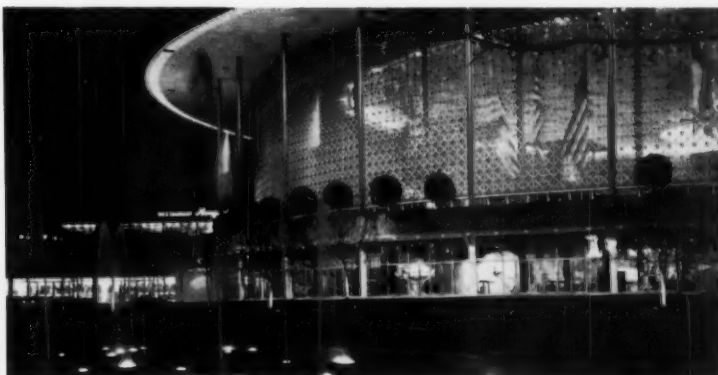
Although the ability of light to attract attention is often used to indicate and encourage the expected movement, there are many other cases in which only its attention-getting ability is desired. An obvious example is an auditorium where the combination of dim house lights and bright stage lights virtually compels attention to the doings on the stage, while the stage lighting itself leads the eye through the action of the play or dance. Less dramatic but equally useful are such techniques as raising the brightness of a lobby near the elevator banks (guidance of movement is also a factor here), and highlighting the focal point of a space—a seating group, a painting, a stairway, or what have you. Certainly all store lighting is meant to direct attention to the merchandise—even though much of it appears to have been designed to feature the lighting fixtures themselves.

In general, high brightness lighting that produces sharp contrasts and sharply defined outlines is more compelling than softly graded lighting even if the graded light increases to the same brightness. Such contrast can be highly useful in picking out objects or areas for special attention, but it can also be very distracting if the attention is drawn to the wrong places.

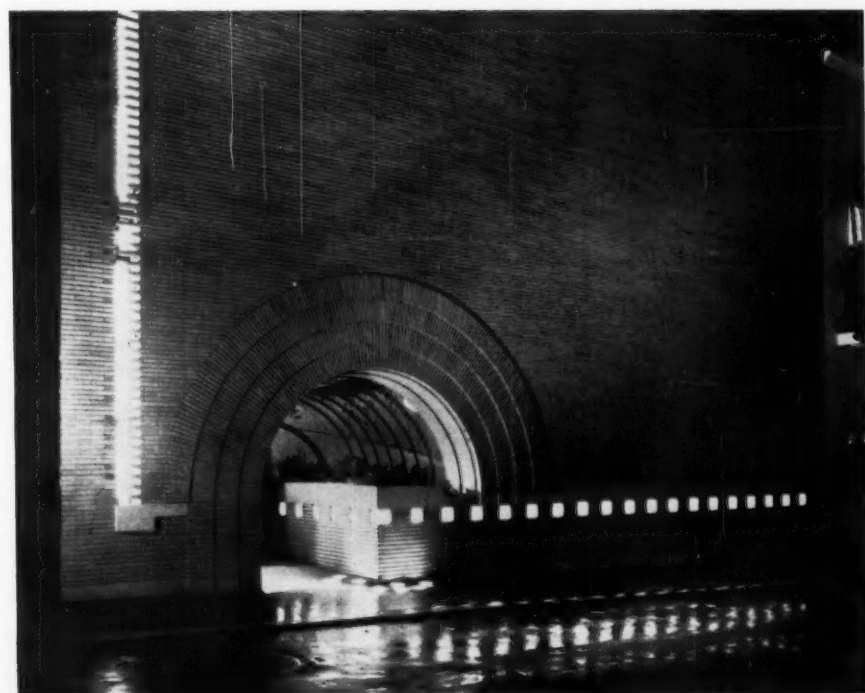
Knowing this, many lighting designers try assiduously to eliminate

Light may be used simply to direct attention to a focal point as in the auditorium below, or it may also be used to guide movement as in the store at right where a row of lights leads passersby to the entrance. The two stores below right show why the visual emphasis of light must be carefully planned: in one, attention is drawn to the merchandise where it belongs; in the other, to the fixtures instead





Left: Low contrast light and visual order can produce a relaxed mood; high contrast light, tautness. Right: Light can add to the excitement of a fair; but "institutionalize" a school where, at night or on cloudy days, it will fall to the floor in pools, leaving the walls and ceiling in darkness



contrast altogether. Thus they avoid the negative effect of distraction, but they also eliminate the positive effect of emphasis. In most cases, it seems more sensible to capitalize on the psychological effects of lighting than to try to eliminate them—particularly since they can't be eliminated in any case.

Even, low-contrast lighting may produce no distractions, but it certainly produces a mood—which may or may not be appropriate. A typist in a large office should, perhaps, not be distracted; a visitor will appreciate appropriate distraction while he waits in the reception room.

While mood-setting and attention-getting and the many other psychological effects of light can never be precisely predicted or measured, the thoughtful architect or engineer can supplement his own personal observations with brightness measurements (to compare with the apparent brightness patterns experienced). With this information, he can "design" psychological effects with as much predictability as any other aspect of architectural design.

However, in thinking of psychological factors, associative reactions should be separated from reflex reactions. For example, Christmas lights would appear exciting to anyone, apart from their association with the holiday, but a reindeer would have meaning only by association.

d. THE LIGHT YOU SEE:

LIGHTING TO EXPRESS

INTENDED USE

Useful as light may be in determining the mood and movements of a building's occupants, and more prosaically, in enabling them to do the work at hand, it also produces another whole set of effects which, like the psychological effects discussed earlier, are based on the human reaction to the light seen. These, however, are less functional than esthetic: they are used primarily to enhance the appearance of a building.

No one will doubt that lighting adds to or subtracts from the visual effect of a building. But the question of whether the lighting is to be a plus or a minus factor is determined as much by its relationship to the rest of the building and the ideas the architect is trying to express, as by the quality of the lighting itself.

If the architect's objective is to express the relationship between the appearance of a room and its intended uses, he may approach that end by relating the lighting to the specific activities which will be carried on within the space. Merely providing appropriate lighting for both the physical and psychological requirements of a space will usually produce

such a lighting-activity relationship, for when lighting is properly related to intended uses, it also tends to reinforce their inherent character. No tricks are necessary, just a logical analysis of needs and confident provision for those needs.

If, for example, a room or a part of a room is to be used for focused group or individual activity, a feeling of intimacy can be reinforced by visually related lighting—hanging lamp, candles or spotlight at the dining table, or local lighting by the home desk or reading chair. (In general, if intimacy is desired, light patterns with maximum brightness on the lower (people) level surfaces are more effective than those with maximum brightness high in the space.)

A similar, non-residential, example is a nurses' station in a hospital corridor, a space that should be bright and cheerful, with good light on working surfaces. Provision for these requirements automatically sets the nurses' station apart from the corridor proper and defines its function—assuming of course that the corridor itself is lighted for its own special requirements. The same principle might be used to visually define the registration desk in a hotel lobby or the cashier's booth in a restaurant.

A visual relationship between lighting and intended use may be particularly effective for rooms that

house more than one activity. An executive office may contain, in addition to the desk, a furniture grouping to be used for informal conferences. If appropriate lighting is provided for these different areas, the executive will enjoy a visual change of pace to match his changing activities, and the room will be far more



In the office above, light provides a change of pace between desk and conference area. In the railway station above right, it immediately locates the ticket office. But in the "loft" school right, a quest for flexibility led to the use of the same lighting in every area—in spite of their different lighting needs

e. THE LIGHT YOU SEE:

LIGHTING TO

COMPLEMENT STRUCTURE

Webster defines *complement* as "that which is required to supply a deficiency, to make perfect, or to complete a symmetrical whole." And it is in this sense that lighting makes its most vital contribution to the appearance of architecture.

If, for example, an interesting structure is important in the design concept, the architect can enlist light to define and reinforce it, by silhouetting major structural members or washing its surfaces with light.

If the object of the lighting is to emphasize unusual contours, as would be the case with folded plates and most thin shells, it should be remembered that an even wash need not be the only answer. Complete

uniformity is difficult to achieve: if the execution is spotty, the attempt might better have never been made. Non-uniformity is not necessarily confusing, and if the shading follows a "natural" pattern, it may be more effective than an even wash in defining the planes of a structure. A folded plate, for example, might be best expressed by lighting that gradually decreased in brightness from the valleys to the peaks.

Negatively, it is perfectly possible to neutralize the effect of an interesting structural pattern by superimposing on it a contradictory pattern of light. Perhaps the most common example of this is the arbitrary placement of fixtures so many feet on center, without regard for the shape of the ceiling they are affixed to. The error may be more glaring if lamps are hung perpendicular to the ridges of a folded plate, but the principle is the same

continued on following page

The form of the shell at right, already well defined by indirect lighting, is further emphasized by luminous elements between its segments. The structure of the roof at far right is also clearly expressed by a graded wash. In contrast, a superimposed light pattern dominates the curves of the shell below; spotty execution mars the definition of the folded plate roof below right

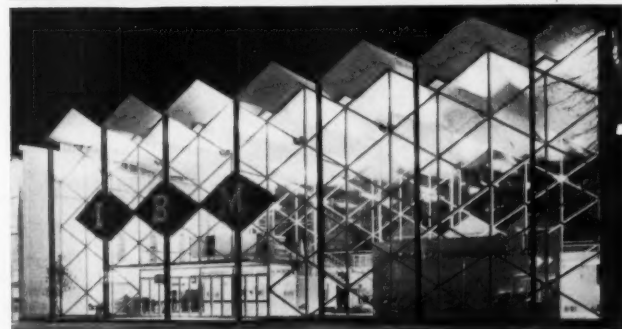
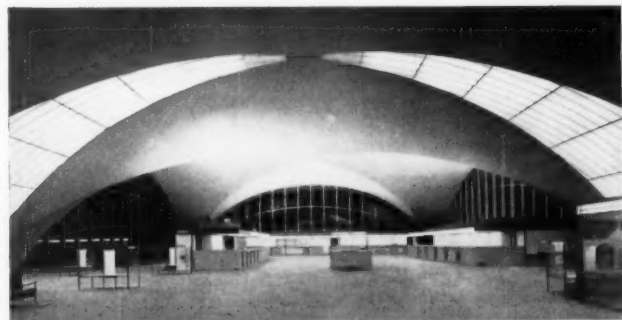


expressive of the work carried on within it than it would be if it were lighted with, for example, a luminous ceiling. (An ever-present bright ceiling might also be a much greater distraction than a planned contrast in lighting patterns.) Similarly, the over-all lighting in a classroom may be supplemented by display lighting

over bulletin boards and chalkboards.

At the opposite extreme is the frequent failure not only to relate the lighting to different activities within a single space, but to different activities from room to room. In an office building, for example, the same lighting (a luminous ceiling, say) is often used throughout, without re-

gard for the different uses of the various spaces. Lighting appropriate for the general offices is assumed to be equally appropriate for private offices; for corridors, where foot-candle requirements are minimal; and for the cafeteria, where cheer and relaxation are called for rather than efficient "working" light.



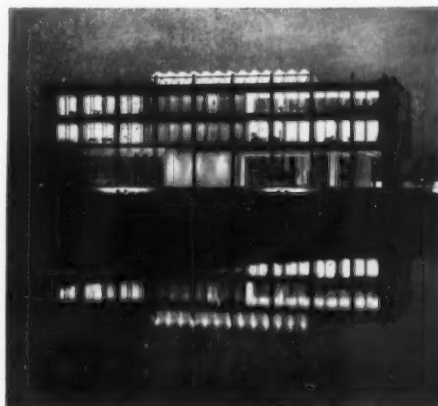
e. LIGHTING TO COMPLEMENT STRUCTURE (cont.)

if the "ridges" are only exposed joists in a classroom.

It is also perfectly possible to use lighting to hide a structure altogether. Beams, pipes, and miscellaneous mechanical equipment are often made "invisible" by painting them and the ceiling in dark colors and placing below them fixtures which produce no uplight. The same technique can just as effectively obliterate a handsome ceiling that was intended to be a prime architectural

feature. And a louvered ceiling suspended beneath a folded plate can erase all kinship between the exterior and interior of a building.

Integrating the structure with the night lighting may require nothing more than lighting the interior so that the light pattern complements the space and structure. If this is done, the exterior will take care of itself. When, instead, the outside walls themselves are lighted by exterior luminous sources, care must be taken that the result is not a huge billboard rather than a structure with an enclosed volume.



f. THE LIGHT YOU SEE: LIGHTING TO MODIFY THE APPEARANCE OF A SPACE

In addition to expressing use and emphasizing structural features, lighting can also be used to alter the appearance of a space, both by the way in which the light is introduced and by the colors of the reflecting surfaces. Designers have long used color to modify the apparent shape of a room, but the space can also be modified visually by the planned introduction of light, with the added advantage of fluidity in design. One can hardly repaint a room every time a change in spatial effect is desired, but lights can easily be turned on or off.

Walls, for example, can be emphasized by painting them in a color that contrasts with the other wall colors in a room. They can equally well be emphasized by lighting them to a brightness that contrasts with the other wall brightnesses. The solidity of a textured wall can be heightened by light, or a polished marble wall can be virtually dissolved in the mirror images that result from misdirected reflected light. Light colors low on the walls of a high-ceilinged room, combined with light directed on the lower planes of the room, can change the proportions of the space.

The ceiling lighting, too, can have a profound effect on the appearance of a space. A ceiling that is the brightest plane in the room may also become the most dominant plane. A solid suspended ceiling ringed by brightness will seem to float on light. A dark ceiling, if it is not picked out

by direct or reflected light, may seem not to be there at all.

A wash of light on walls and ceiling may visually expand a space by erasing the wall-ceiling intersection to produce a neutral sky-like effect. This would be particularly helpful in reducing the claustrophobia often caused by windowless spaces.

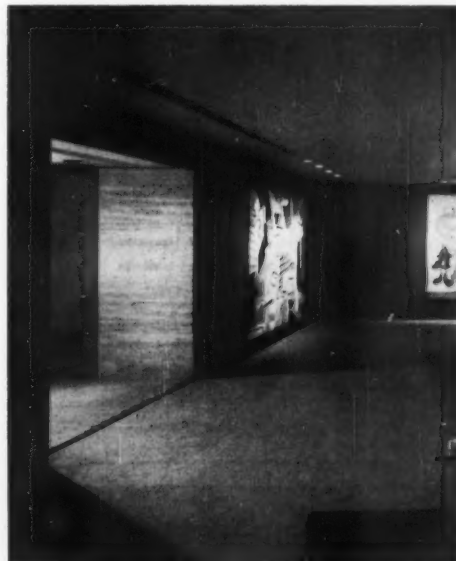
In some cases, a dominant pattern of luminous sources can organize a space by breaking up the ceiling plane and rearranging it in elements better suited to the uses of the room. Or the dominant ceiling pattern may be transferred to the floor, where pools of light replace the luminous sources themselves. Similarly, strongly horizontal wall lighting may visually organize such diverse elements as the windows, doors, chalkboards, tackboards and lockers in a classroom—and do it much more naturally and logically than the painted line or molding that is so often used.

Lighting can also extend space by taking advantage of the transparency of glass to emphasize the continuity of continuous planes: wall, ceiling or floor. Glass, as we all know, tends to become opaque—or a mirror—at night. Its transparency can be restored by as simple a device as extending the room lighting a short distance outside, or by suitable exterior lighting to offset the difference in brightness inside and out. The same technique—in reverse—might require suitable interior lighting during the day.

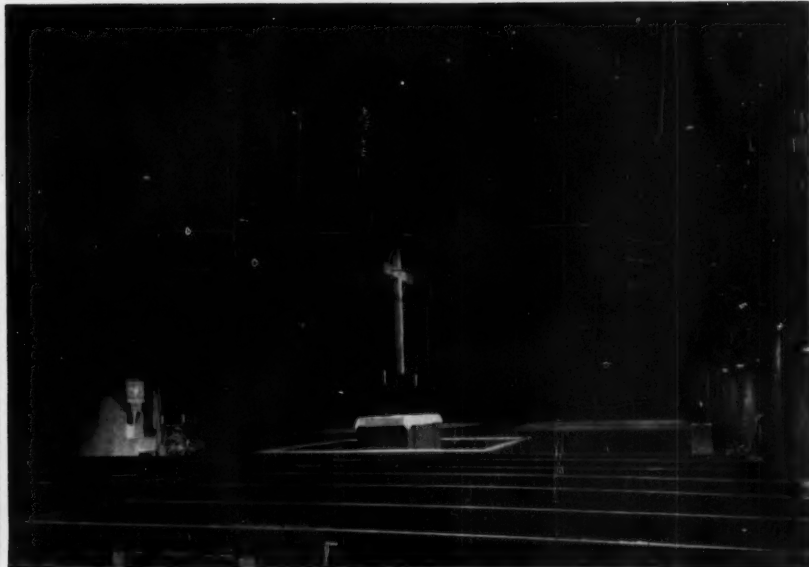
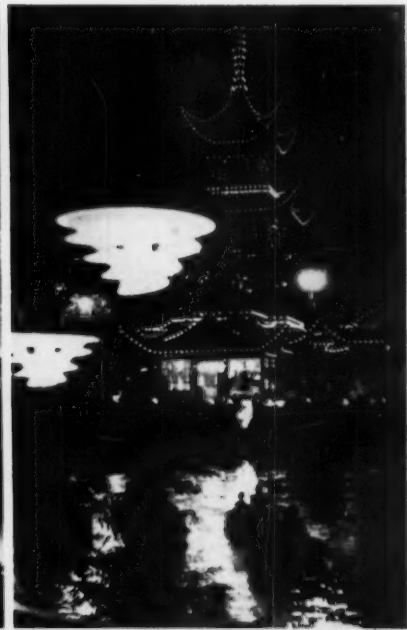
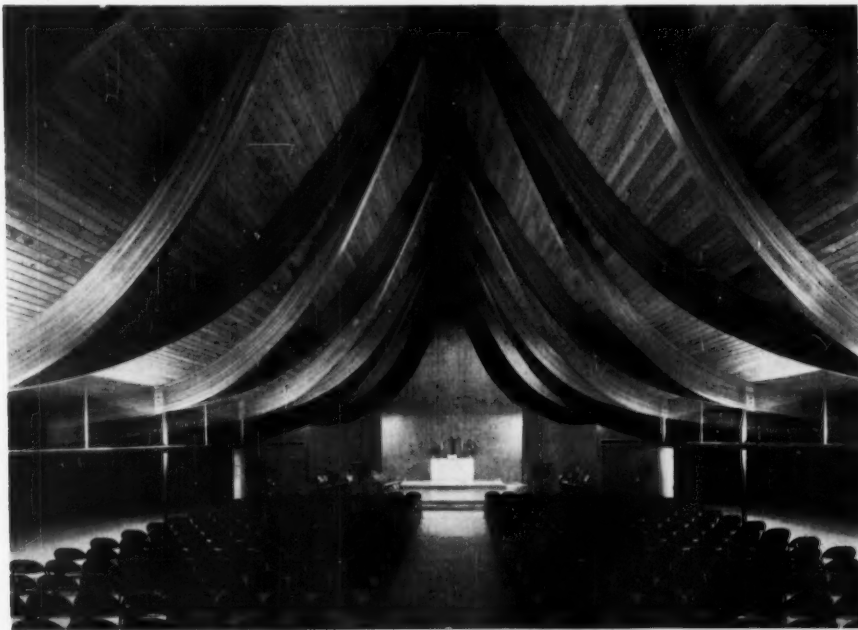
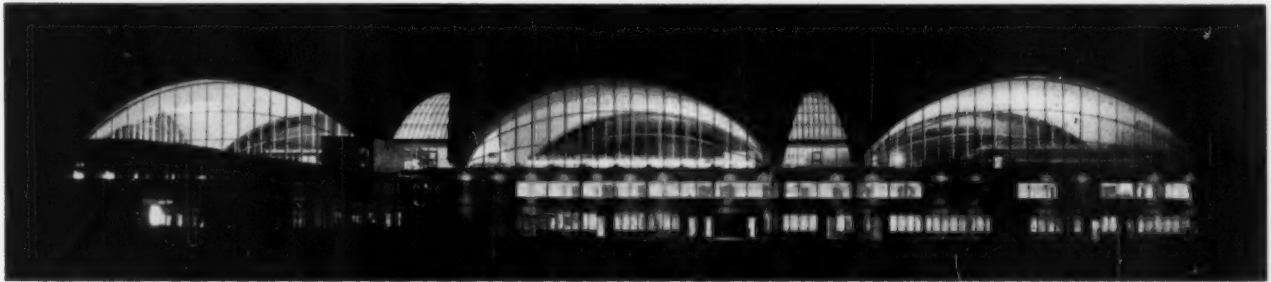
There is, finally, light's ability not only to modify space but to "create" it. Street lighting, for instance, creates space of a sort; other kinds of outdoor lighting, including even hanging lanterns, can effectively create spaces of very different sorts.

Spaces can be modified visually by changing the relationships of surfaces through manipulation of light patterns and reflectances. In the reception area below, one wall is emphasized by finishing it in a lighter color than the other walls and bathing it in uniform light. Conversely, the ceiling in the church below right is made "invisible" by its own dark color and by scattered downlights which give adequate illumination on the pews and altar—but cast no light at all on the ceiling.

Light can also modify space by extending it, as in the church at right. Here light flows on both sides of the glass walls, maintaining the transparency of the glass and emphasizing visually the actual continuity of the floor and ceiling beyond the walls. In the amusement park at far right, the lighting itself virtually creates the spaces—as do hanging lanterns or street lights



The other aspect of lighting to complement structure is exterior lighting—which is often most effective when it doesn't exist. If the interior lighting is related to the structure, as in the building at left, the same lighting will render the building properly at night, revealing the pattern of the fenestration and the interior spaces rather than that of the fixtures: the carefully placed openings in the shell below are equally expressive from the outside by night and from inside by day



g. THE LIGHTING SYSTEM: HOW TO ACHIEVE

THE LIGHTING OBJECTIVES

After the lighting objectives have been defined by deciding how much light is required to see by; how the light seen should look in order to encourage proper use of a space; and what appearance the structure and space should have when rendered by artificial lighting, daylight, or both, these objectives must be thought of in terms of execution.

This process should take place early in the planning, when changes in the choice of materials and colors, or even in the structure, can still be made. Remember that every decision on structure and color is as much a "lighting" decision as is the choice of lighting fixtures. All buildings are designed by adjusting basic schemes to meet many-faceted requirements, and light should be considered from the beginning as one of those requirements.

Daylighting has certainly been one of the key factors in the shaping of plans and structures—from the classic example of a Gothic cathedral where the structure was created to achieve the desired window shapes, and the modeling of the details was based on the light that would render them, to the multiplicity of clerestories, skylights, saw-toothed roofs and so forth used today.

There is equal reason to coordinate the shape of structures with artificial lighting, which can only be fully integrated if it is considered at every stage of design. If the lighting system is applied after the design is completed, half-measures may be the only measures still possible.

The next question is what the lighting equipment itself should look like. Should everything be flush, or should the fixtures be expressive? There are probably as many points of view on this as on whether the bones of a structure should show or be hidden, or on whether cars should have door handles or push buttons. Many architects would like for light to appear without *any* source. But there is no particular reason why lighting equipment cannot be expressively yet unobtrusively related to the building, in the same way a well-placed shelf is.

The same principle that applies to the design of any building element

should also guide the selection of lighting equipment: that is, its relationship to the room functions and to the other building components in terms of dimensions, alignment, shapes, materials, and quality of details. The single most important element in lighting is the design of a light pattern that is logically related to use, space and structure. If the lighting effects are well conceived, achieving adequate equipment details is a relatively simple matter.

One error commonly made in selecting lighting equipment is considering its appearance only with the light off. Flush fixtures that are practically invisible when off may be anything but unobtrusive when lighted, and few light sources can be so dominant as a seemingly innocuous luminous ceiling. On the other hand, suspended fixtures may be relatively inconspicuous if they are placed so that the pattern of light they produce is more prominent than the fixtures themselves.

A largely unexploited opportunity for establishing integrated light patterns is the use of other parts of the building to control and distribute light, instead of relying on the lighting fixtures to work independently.

Walls, ceilings and other surfaces of a room may be effectively used to control reflected light, with surfaces of low reflectance, for example, acting as a foil for highly reflective surfaces, or highly reflective surfaces throughout a small room serving to disperse and diffuse light from a single source. An aisle or counter may be highlighted as effectively by its own light-colored surface as by local lighting. Unusual ceiling constructions or suspended acoustic baffles may house fixtures or provide built-in shielding. Other peculiar features of a space may also be exploited, as when library stacks or space dividers house indirect ceiling lighting.

In summary, the objectives of good lighting are to make a building work well in its intended use, to psychologically encourage that use, and to make the building more beautiful. In accomplishing this, we must remember that light is seen as well as seen by, and that its appearance should be calculated as carefully as the footcandles it produces.

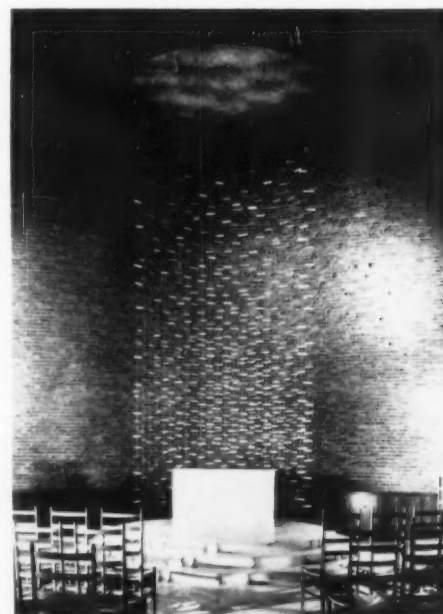
Much unattractive and uncomfortable lighting is the result of following standards that are stated mostly in terms of horizontal footcandle levels, and designed almost solely to fulfill physical requirements. Close

analysis of actual tasks and seeing requirements indicates that this "light for seeing" basis for architectural lighting is applied far too extensively. A very large portion of lighting design should be aimed primarily at the meeting of psychological and esthetic requirements, and even in "utilitarian" lighting, maximum footcandles should be far from the only objective.

For areas such as lobbies, public spaces of banks, gymnasiums, cafeterias, many stores, and an endless list of similar spaces, the basic illumination requirements for seeing are al-



When lights are on, the pattern of "unobtrusive" flush fixtures may dominate a space (above). Suspended fixtures, if logically placed (right), may be subordinate to the light pattern they produce



most negligible if there are no distractions from windows or lighting equipment. More often, the objectives of the lighting design are to balance competing glare and to create the optimum psychological and esthetic environment.

The wide spread between the "required" illumination levels for easy and difficult tasks suggests that the "monotonous" lighting architects have been complaining about is, in fact, not even the best solution in the physical sense, and that without increasing budgets, there could be far fewer footcandles in many areas and

far more where they are really needed. Except in those areas where sustained close work is done, meeting the psychological and esthetic requirements would in most cases also fulfill the requirements for seeing.

Progress in architectural lighting is only going to be made by starting with the broad objectives rather than with the details of footcandles and fixtures. This demands first of all the attention of the architect, who alone can relate the lighting objectives and designs with those of the rest of the building. And it further demands sympathetic collaboration from the

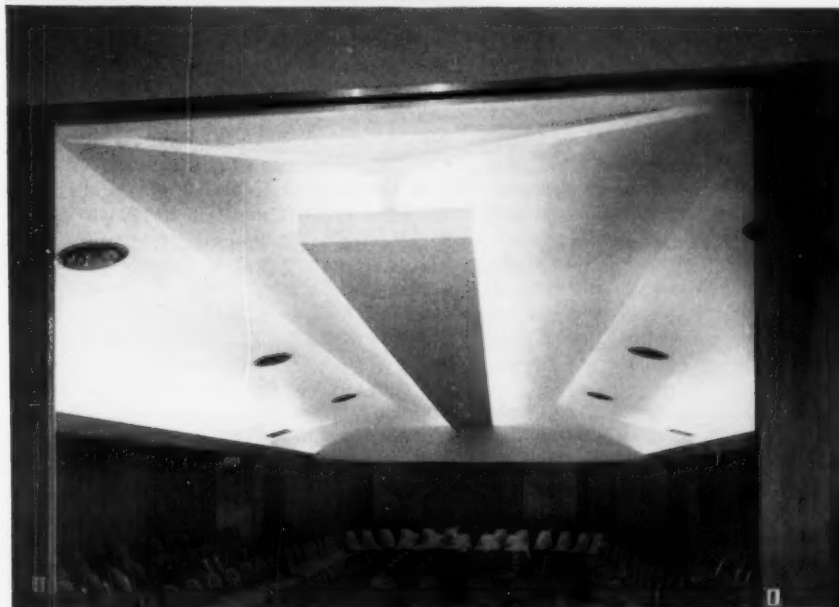
engineer who carries out the design.

Such a process is admittedly much more difficult than just following footcandle tables which are at best incomplete and at worst irrelevant. But everyone should find the extra trouble worth-while: the public and the architect, because in our day good architecture cannot exist without good use of both daylight and artificial light, and the lighting engineers and the lighting industry, because lighting might then become the last instead of the first item in the budget to be trimmed.

See credits pages 296 and 300



Above: In early architecture—and some recent work, daylighting requirements have shaped buildings. Below: Buildings can also shape light. A reflecting screen and white altar are key elements in the lighting of a chapel; a ceiling serves as a lighting cove; or structure doubles as shielding—successfully in a bowling alley, less successfully in a lab where the viewer's position varies



A PERFORMANCE STUDY OF CONDUCTIVE FLOORING

Extensive laboratory and field tests by the National Bureau of Standards provide new specification background information on conductive flooring. The presently accepted method of testing the electrical efficacy has been substantiated by the Bureau's studies. The research also showed that the durability and maintenance characteristics do not differ essentially from nonconductive flooring of similar nature

It has long been recommended practice to use conductive flooring in surgical suites to minimize the possibility of electrostatic sparks igniting anesthetic vapors or gases. Functionally, the conductive flooring must have the proper electrical characteristics, but in addition, architects are concerned with matters of durability, maintenance and appearance.

A study,* recently completed by the National Bureau of Standards, supports the presently accepted method of specifying and testing the conductivity of installed floors established by the National Fire Protection Association.†

NBS also concludes that, in general, conductive floorings can be expected to give comparable service to nonconductive floorings of the same type.

The report points out that, although the color range is necessarily limited in some of the flooring materials because of the conductive medium (carbon black) used, still a variety of patterns is possible.

The prime requirement for conductive flooring is that the electrical resistance be within a specified range—less than 1,000,000 ohms and more than 25,000 ohms, as measured by the NFPA method. The upper value was chosen to make sure the electrical resistance is low enough to prevent electrostatic charges from building up to sparking voltage, the lower value to prevent electric shock due to faulty electrical equipment or wiring.

The Bureau of Standards report discusses laboratory and field tests which prove that the NFPA method of measuring the resistance of in-

stalled floors reasonably simulates the conditions of actual use, i.e., contact with the conductive floor through operating room furniture and shoes worn by the surgical team. Tests indicated that the specification of a top resistance of one million ohms (NFPA method) will prevent electrostatic voltage from reaching sparking level.

The NBS report states that methods of judging the durability and maintenance features of conventional floorings can be applied to conductive floorings as well. The efficacy of several types, however, depends on maintenance procedures and conditions of use. For example, the durability and appearance of linoleum and rubber may depend on periodic waxing. Conductive waxes containing carbon black are available and should be esthetically as well as electrically satisfactory. The report warns that sealers should not be used on conductive floors until proven satisfactory by electrical tests.

With oxychloride conductive floors, moisture content was found to affect the electrical resistance. Laboratory tests indicated that too little moisture might make the resistance go above the top limit, and too much, below the bottom limit. Thus the relative humidity of the room air and the cleaning schedule should be carefully established and controlled when this material is used.

Materials tested in the NBS study included samples of ceramic tile, a plastic coating, concrete terrazzo, latex, linoleum, oxychloride (terrazzo and plain finish), rubber sheets and vinyl tile.

Samples were 18-by-18-in. floors on plywood panels obtained from domestic suppliers of commercially available conductive flooring. Application followed each manufacturer's own practice.

The electrical conductivity of all samples except the oxychlorides and

one made of ceramic tile depended on the presence of acetylene (carbon) black. In the case of ceramic, linoleum, rubber and vinyl samples, the carbon black was finely dispersed in the material during manufacture; while with latex, concrete terrazzo and the setting bed for ceramic tile, the carbon black was mixed on the job.

Oxychloride floors are made by combining an aqueous solution of magnesium chloride with powdered magnesium oxide. Various fibrous and mineral fillers are mixed with the paste which sets to a hard mass. Marble chips may be added to the mix and the surface ground to produce a terrazzo floor.

Scope of the NBS study included: (1) measuring the electrical resistance of all samples by established methods, (2) determining the effect on resistance of such factors as aging, moisture, wear and maintenance, (3) determining the effect of variations in test conditions upon measured resistance, (4) checking the measured resistance against an actual electrostatic charge (generated by a person wearing wool clothing and rising from a plastic covered chair—such condition prohibited by NFPA standard), (5) comparing physical properties of the conductive samples to nonconductive floors of the same type. In addition to laboratory tests, field tests were made on five different types of conductive floors.

Effect of Aging. Tests made over a period of 30 months indicated that aging did not affect the resistance of the floors except for several oxychloride samples.

Effect of Room Humidity and Surface Moisture. The results of these tests show that the only material significantly affected by extremes of humidity was oxychloride flooring. Figure 2 indicates that exposure of oxychloride samples to 80 per cent

**Conductive Flooring for Hospital Operating Rooms, NBS Monograph 11.* Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., 20 cents.

†NFPA No. 56 *Recommended Safe Practice for Hospital Operating Rooms*, May 1958.

SAMPLE	DESCRIPTION	METHOD OF APPLICATION
1. Ceramic Tile	Random pattern of 1/4-in.-thick black conductive tiles (1 9/16 in. sq, 3/4 in. sq and 1 9/16 by 3/4 in. oblong) and green nonconductive tile (1 1/2 by 3/4 in.)	Tiles were laid in a conductive mortar underbed containing 3 per cent carbon black. 1/16-in.-wide joints were grouted with nonconductive cement mortar
2. Ceramic Tile	Brown conductive tile, 1 9/16 in. sq	Same as above. Also provided with tile set in conductive adhesive and nonconductive cement mortar joints
3. Plastic Coating	Black. Mixture of plastics, solvents and conductive ingredients	Applied by spray, brush or trowel to a thickness of 1/16 in.
4. Concrete Terrazzo	Dark gray conductive matrix with stone chips of black and green	Concrete underbed containing 3 per cent carbon black, and a terrazzo top surface with 2 per cent carbon black (carbon black based on weight of dry cement). The sample was constructed according to specifications of the National Terrazzo and Mosaic Association. Samples were treated with a recommended penetrating type sealing compound
5. Latex Terrazzo	Black neoprene and cement matrix with pink, green and white chips	Material troweled 1/2 in. thick; intended for use over existing or new, structurally sound underfloors. Four coats of manufacturer's sealer had been applied
6. Linoleum	Black. 6-ft-wide strips, 1/8 in. thick. Burlap backing	Placed over a suitable underfloor by conventional methods. Manufacturer prescribed brass seam connectors with projecting points to intercouple sheets electrically. Manufacturer stated that wax or protective coats should not be used and recommended dry machine brushing
7. Oxychloride Terrazzo	Green matrix. Approximately 50 per cent of surface covered by black and white nonconductive chips	Material applied 1/2 in. thick over suitable underfloor. Liquid synthetic resin bonding agent covered by coarse mineral grains provided anchoring between terrazzo and underfloor
8. Oxychloride (Plain)	Dark red	Same as above
9. Oxychloride Terrazzo	White matrix. Approximately 50 per cent of surface covered by black and white nonconductive chips	Material laid 1/2 in. thick over asphalt felt and wire mesh and a suitable underfloor
10. Oxychloride Terrazzo	Red, green and gray matrices. Approximately 30 per cent of the surface covered with black and white nonconductive chips	Material laid 1/2 in. thick over 2-in.-sq wire mesh and a suitable underfloor
11. Oxychloride Terrazzo	Green matrix. Approximately 65 per cent of the surface covered with black, green and white nonconductive chips	Material laid 1/2 in. thick over suitable underfloor
12. Oxychloride (Plain)	Red; other colors available. This cupric oxychloride material contained finely divided copper powder (5 to 10 per cent by weight) of dry mix	Material applied 1/2 in. thick over a suitable bonding agent and subfloor
13. Rubber	Black, 1/8 in. thick. Backed by cotton fabric	Adhesive was used to fasten the sheets to a suitable underfloor and intercouplings similar to those used with linoleum (sample 6) can be used to connect the sheets electrically
14. Vinyl	Black conductive field and a white and green marbled design. 9-by-9-in. polyvinyl chloride-based tiles, 1/8 in. thick	Special underlayment of felt with pressure-sensitive adhesive on both sides served to bond the felt to the underfloor and the tile to the felt. Copper foil, 1/2 in. wide, was placed on the felt to provide electrical intercoupling between tiles
15. Vinyl	Molded terrazzo design of either white or gray field with a black "chiplike" effect. 9-by-9-in. polyvinyl chloride-based tiles, 3/16 in. thick	Adhesive was troweled onto a suitable underfloor. 1-in. copper foil placed on the adhesive provided an electrical intercoupling between tiles

CONDUCTIVE FLOORING

rh caused their resistance to fall below the 25,000-ohm minimum and exposure to 10 per cent rh caused their resistance to go above the 1,000,000-ohm maximum. Tests to determine the effect of mopping were made using a rubber sponge saturated with water; any excess of water was allowed to remain. Again the oxychlorides were the only samples significantly affected, their resistance falling below the minimum limit, except when the humidity was maintained at 10 per cent.

Testing Method. The Bureau of Standard tests showed that the 1,000,000-ohm limit measured with a 500-v ohmmeter and using standard electrodes gave a reasonably valid criterion of performance for the floors tested. In case of doubt, such as when floors are slightly above the top limit, measurements of resistance between objects in the room can be used to provide evidence of the safety of the floors.

NBS tests also demonstrated that for resilient floors there is a safety factor of about 10 for the present 1,000,000-ohm specification, even at as low a relative humidity as 20 per cent, because the resistance of these floors is relatively independent of the hardness of contacting objects. There appears to be no such factor for hard-surfaced floors. However, there is a very large factor of safety (10 or more) if, as specified by the National Fire Protection Association, wool and plastics are prohibited in the operating suite. In addition, there is another large safety factor if a relative humidity of not less than 50 per cent is maintained, as designated by the NFPA standard.

Physical tests nonelectrical in nature made by the Bureau included indentation (to measure relative foot comfort and resistance to permanent deformation due to a concentrated load such as a table leg), scratch resistance, slipperiness, resistance to scrubbing, water absorption and stain resistance.

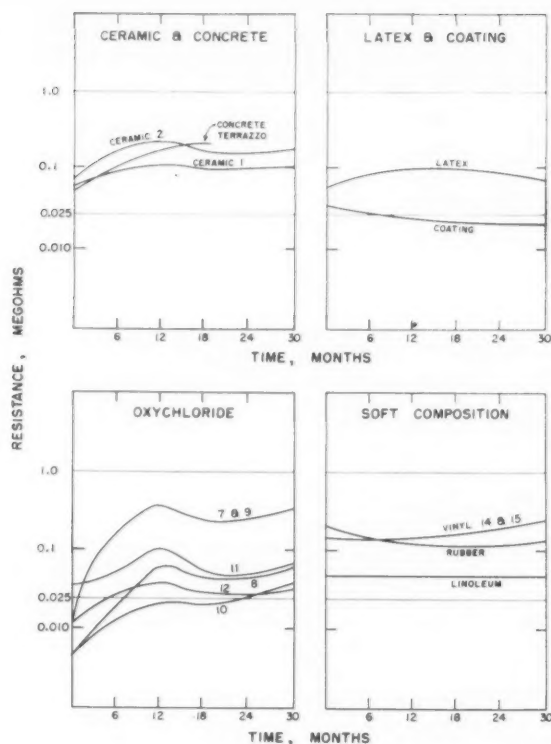


Figure 1. Effect of aging on electrical resistance

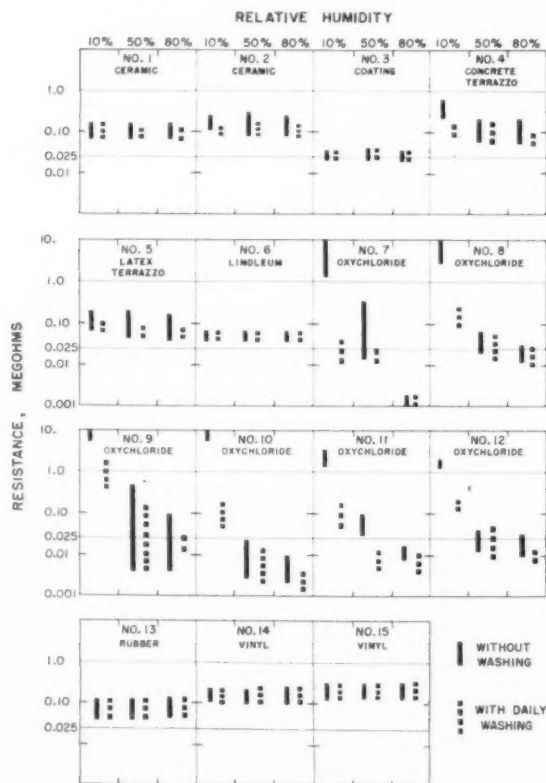


Figure 2. Effect of relative humidity and daily washing on electrical resistance

Remodeled Molecules Produce Effective One-Part Sealant

Shortly after "curtain wall" became a key word in the architectural vocabulary, it became apparent that the new definition of curtain wall also demanded a new definition of the word "sealant." The oil-based mastics that were—and still are—doing yeoman service as glazing and caulking compounds were simply not adequate to meet the more stringent requirements for sealing the large area panels and panels of the newer types of curtain walls, especially in high-rise buildings subject to substantial wind stresses. So construction people promptly borrowed from the marine and aviation industries the two-part synthetic rubber-based compounds that remain the standard definition of sealant, in spite of the many experiments with resilient gaskets, tapes and compound sealers designed to overcome the hazards of mixing and applying two-part sealants under normal field conditions.

Now Tremco, itself a long-time producer of two-part polysulfide liquid polymer sealants, is offering a new definition—a one-part sealant that the company says is better than the best caulking compounds and similar to more costly two-part liquid polymer sealants.

The most obvious advantage is of course the fact that the *Mono Lasto-Meric* sealant comes pre-mixed and ready to use without on-site preparation. But more important, by going back to basics, Tremco's research people were able to produce a 100 per cent liquid polymer that, unlike compounds based on solid vinyl or butyl, does not need to be modified or dissolved with oil or other additives. By remodeling a basic acrylic polymer, they came up with a co-polymer whose elasticity, adhesion and resistance to hardening under ultraviolet rays, oxygen and moisture are inherent in the compound itself—not the result of additives that may migrate or disappear in time.

The exclusion of migratory ingredients also makes it possible to use the sealant on both porous and nonporous surfaces and joints without danger of staining. Ordinary precautions should be taken to apply the sealant to clean, dry surfaces, but priming is usually not necessary. And if by chance a first bond is not achieved because of moisture, the compound's unique self-sealing

property comes to the rescue: it regains adhesion when this moisture evaporates and the two surfaces are rejoined.

Mono Lasto-Meric is recommended for channel glazing, bedding and sealing of joints around most types of panels and lights in curtain walls and other forms of building construction, and for caulking and pointing masonry. It comes ready to apply in spouted cartridges; reaches its ultimate set and firmness

in one or two months without noticeable hardening thereafter; and can be tooled after gunning. Shortly after application, it develops a slight skin which can be painted over if desired. The natural water-white color of the co-polymer makes it possible for Tremco to offer virtually any color specified. Present standard colors are black, three shades of gray, aluminum, and white. *The Tremco Manufacturing Co., 10701 Shaker Blvd., Cleveland 4, Ohio*

Air-Sealed Panels Form "Permanent" Portable Wall

The new *Airwall* portable wall offers maximum flexibility in interior space division, plus excellent sound retarding qualities, and minus floor and ceiling tracks. The key to its flexibility is a series of interchangeable filler panels, each 36 in. wide and up to 12 ft high, which are fitted with a tongue and groove joint so that they lock firmly together to provide a smooth flush wall. The panels are light enough (about 1.8 psf depending on the facing material used) to be moved by one man, but once in position, they form a highly stable wall with characteristics that belie its portability.

This is accomplished by a telescoping *Airwall Cap* at the top of each panel. After the panel is in place, an air seal running its length is inflated, raising the telescoping cornice to fit snugly against the ceiling. Thus the panels are held firmly without floor or ceiling attachments.

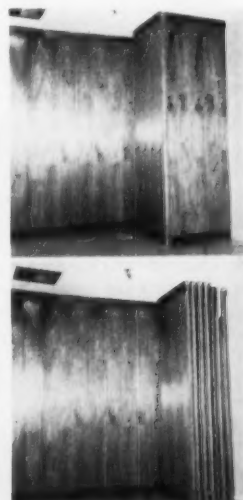
The only restriction is the need for a rigid ceiling—suspended ceilings won't do unless a beam is provided.

The tight seal at floor and ceiling, plus felt "sound-stripping" between panels, gives the wall about the same sound retarding qualities as a permanent stud and plaster wall.

The panels themselves have an expanded styrene core, faced with hardwood veneer, laminated plastic or vinyl. A different material may be used on each side so that the decor in adjacent rooms can be changed by simply turning the panels around. Additional flexibility is provided by door panels, pass-through panels and window panels that supplement the interchangeable filler sections, and by adapters that make possible right angle, "T" and "X" panel intersections. *Airwall, Inc., 16706 South Garfield Ave., Paramount, Calif.*

continued on page 244

Although installed *Airwalls* look permanent (below), they can actually be moved at will. They are also self-storing: enough panels for a 36-ft wall can be stacked in 3-ft square and disguised by facing panel as at right



Gas-Fired Unit Ventilator

Contains engineering data, operation and controls information, specification data, dimension drawings, and installation diagrams for Herman Nelson UNivent gas-fired unit ventilators for school classrooms. Bulletin 685-A1, 16 pp. Dept. PD, American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

Aluminum in Architecture

(A.I.A. 15-J) Describes available aluminum alloys, discusses design considerations and limitations, and gives extensive selection guides and property tables. Special sections give technical data on aluminum extrusions, curtain walls, finishes and specialty products, as well as suggested specifications for all types of architectural aluminum. 24 pp. Kaiser Aluminum & Chemical Sales, Inc., Dept. NR-40, 300 Lakeside Dr., Oakland 12, Calif.*

Aluminum for Architecture

(A.I.A. 15-J) Contains comprehensive information on the selection of aluminum alloys and surface finishes, with detailed technical data and guide specifications. Bulletin OA-18, 20 pp. Metals Div., Olin Mathieson Chemical Corp., 400 Park Ave., New York 22, N. Y.*

Industrial Direct Fired Heaters

Comprehensive application manual on industrial heating with direct fired heaters covers definitions of terms; discusses direct fired heater systems; and includes sections on heat loss calculations and air distribution, fuels and fuel distribution systems, and control systems. Text is supported by design procedures, diagrams, and extensive reference tables and charts. 64 pp. Lennox Industries, Inc., Dept. I, Marshalltown, Iowa

Panel-Board Partition System

(A.I.A. 35-H-6) Includes descriptions and illustrations of the different types of partitions available in the Panel-Board system, plus elevation and section drawings, a parts list, and specifications. 16 pp. Penn Metal Company, Inc., Parkersburg, W. Va.*

American Olean Ceramic Tile

(A.I.A. 23-A) Describes types and uses of unglazed and glazed tiles; illustrates (in full-color) available

colors and textures, and typical patterns and installations; and gives installation details on tile trim shapes. Catalog 210, 32 pp. American Olean Tile Co., Inc., 1000 Cannon Ave., Lansdale, Pa.*

Gratings, Flooring and Treads

(A.I.A. 14-R) Presents detailed instructions for selecting, specifying and ordering gratings, plus dimensional drawings and safeload tables for the various types of gratings. Safety treads and nosings are also shown. 16 pp. Borden Metal Products Co., Green Lane, Elizabeth, N. J.*

Quality Plastics for Lighting

(A.I.A. 31-F-2) Illustrates, describes, and gives complete photometric data on K-Lite extruded plastic prismatic lens panels. Also available is a calculator for determining the lens panel square footage necessary for any lighting job. K-S-H Plastics, Inc., High Ridge, Mo.

Play Sculptures... Street Furniture

Describes, illustrates and gives selection information on a complete line of modern playground equipment in tubular steel, fiberglass, cast stone, aluminum and concrete, plus similar data on a new group of street furniture—planters, bulletins, seating units, and other pieces. 32 pp. Play Sculptures, Inc., P. O. Box 1100, Princeton, N. J.

Wood Hyperbolic Paraboloid

Construction and Analysis of Simple Hyperbolic Paraboloid Shells of West Coast Lumber explains general construction procedures and describes technical analysis of a simple wood hyperbolic paraboloid. Data is based on Forest Products Pavilion at the 1959 Oregon Centennial Exposition. 8 pp. West Coast Lumbermen's Assn., 1410 S. W. Morrison St., Portland 5, Ore.*

Library Equipment and Furniture

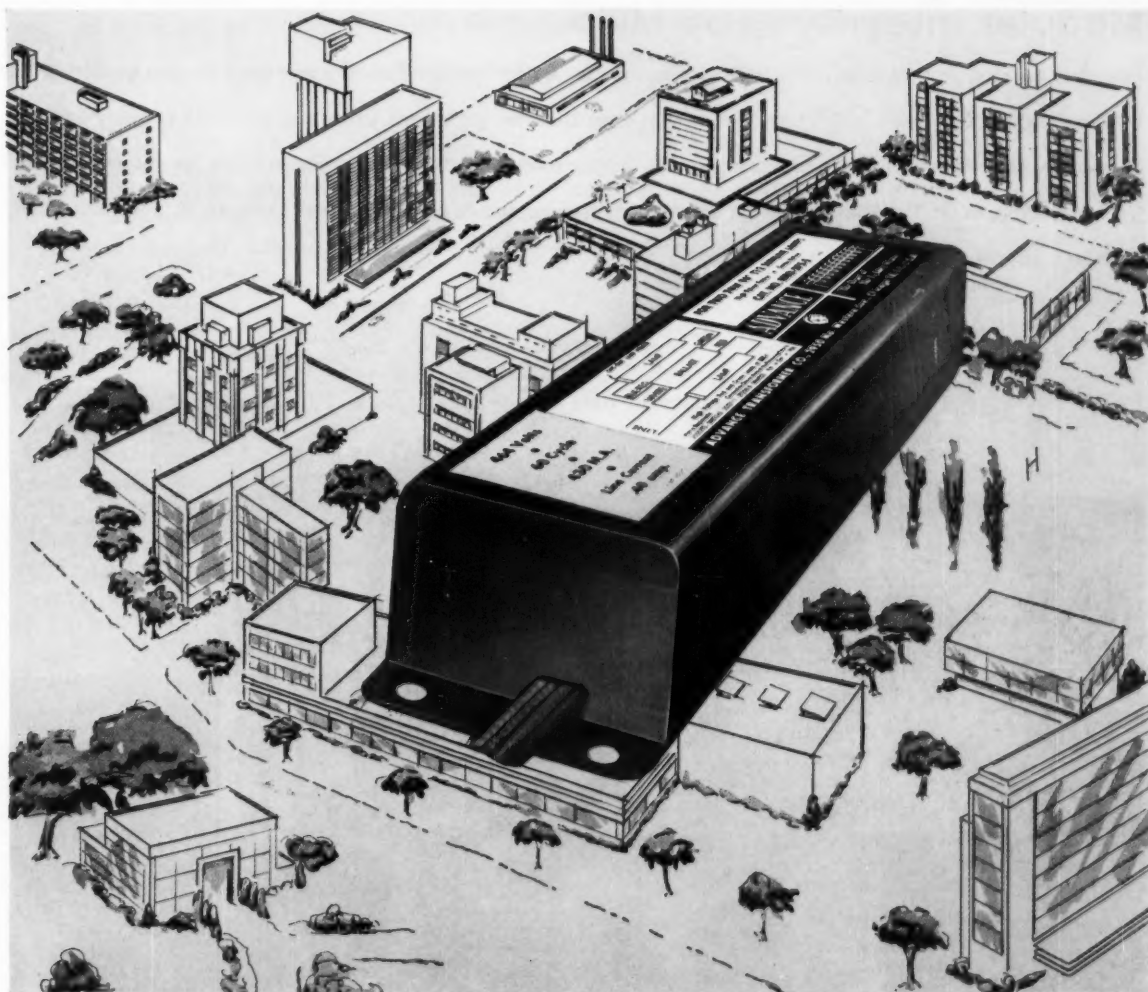
(A.I.A. 35-B) Provides complete descriptive information, including specification charts, photographs and diagrams, on the Heller line of single and double faced library shelving, charging desks, tables, chairs and miscellaneous library equipment. *The Heller Co., Library Div., 58 Wabash Ave., Montpelier, Ohio*

*Additional product information in Sweet's Architectural File

more literature on page 288






COLOR AND SPECIFICATION MANUAL and WOOD FINISHING SYSTEM (A.I.A. 25) are two hard-covered, loose-leaf books designed "to be set alongside Sweet's files" on the architect's bookshelf. The first, Form 1193, contains a 112-page manual that gives complete product information, including specifications and application data, on a full line of interior and exterior paints. It also includes large color swatches of the paint products, with information on available finishes and light reflectance values for each. *Wood Finishing System*, Form 1198 contains actual wood chips finished with the various fillers, stains and finishing coat systems in the A-M line. American-Marietta Co., Architect/Contractor Service Dept., 101 East Ontario St., Chicago 11, Ill.



TO SOLVE MORE DEMANDS IN MORE APPLICATIONS FOR MORE LIGHT

Increasing with today's architectural demands on the Fluorescent Lighting Industry are the problems relating to the operation, efficiency and life of a Fluorescent Lamp Ballast.

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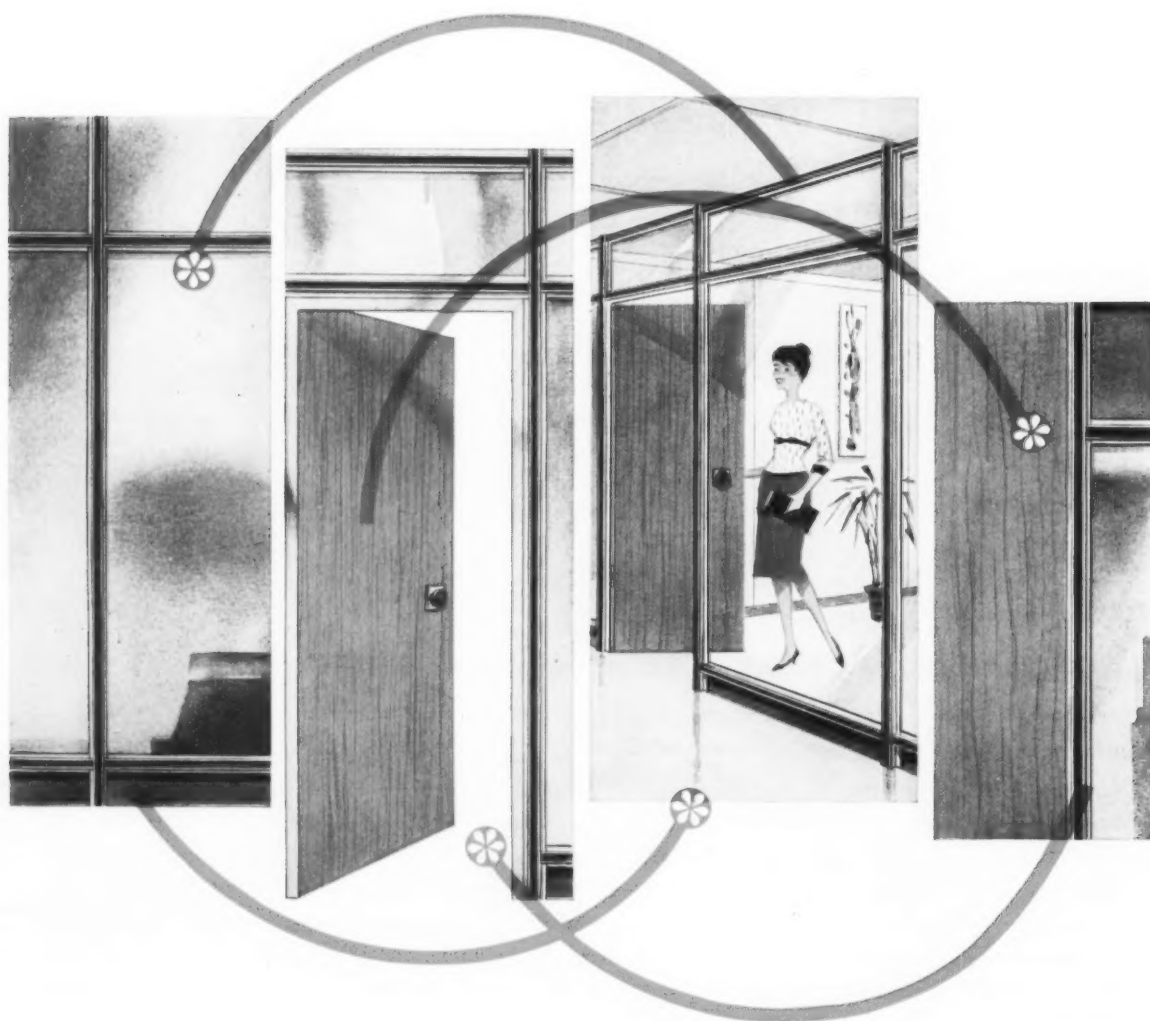
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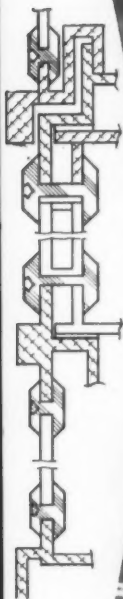
SPECIFICATION OF PAINTS FOR VARIOUS SURFACES AND CONDITIONS

by Ray E. Cumrine, A.I.A., Ketchum & Sharp, Architects

Specification of paints has become much more complicated as new materials have been developed through modern paint technology for practically every surface and service condition. Below is a check list of the principal paint types and their applications.

EXTERIOR SURFACE	PRIMER	FINISH
Concrete and Concrete Block	1. Polyvinyl Acetate 2. Acrylic 3. Styrene-butadiene 4. Cement	1. Polyvinyl Acetate or Styrene-butadiene 2. Acrylic 3. Styrene-butadiene 4. Cement
Brick, Cement Asbestos	1. Polyvinyl Acetate 2. Acrylic 3. Styrene-butadiene	1. Polyvinyl Acetate or Styrene-butadiene 2. Acrylic 3. Styrene-butadiene
Aluminum	1. Zinc Chromate	1. Linseed Oil
Galvanized Metal	1. Zinc Dust and Zinc Oxide, Zinc Chromate or Aluminum 2. Vinyl-alkyd wash	1. Linseed Oil or Alkyd 2. Vinyl-alkyd
Iron and Steel	1. Red Lead, Blue Lead or Zinc Chromate	1. Linseed Oil or Alkyd
	Chemical-Resistant	
	1. Neoprene 2. Wash Primer and Zinc Chromate Vinyl Resin 3. Phenolic Resin 4. Epoxy 5. Vinyl-alkyd wash	1. Neoprene 2. Vinyl Resin 3. Phenolic Resin 4. Epoxy 5. Vinyl-alkyd
Hot Metal (To 500°)	1. Zinc Dust or Aluminum	1. Aluminum
Metal Under Water	1. Phenolic Type Zinc Chromate 2. Neoprene	1. Phenolic Type Zinc Chromate 2. Neoprene
Wood	1. Linseed Oil 2. Alkyd 3. Acrylic	1. Linseed Oil 2. Alkyd 3. Acrylic
Plaster (Stucco)	1. Polyvinyl Acetate 2. Acrylic 3. Styrene-butadiene	1. Polyvinyl Acetate or Styrene-butadiene 2. Acrylic 3. Styrene-butadiene
INTERIOR SURFACE	PRIMER	FINISH
Concrete and Concrete Block	1. Linseed Oil 2. Cement 3. Chlorinated Rubber 4. Styrene-butadiene 5. Acrylic 6. Epoxy or Acrylic 7. Polyester 8. Polyvinyl Acetate 9. Alkyd	1. Linseed Oil 2. Cement 3. Chlorinated Rubber 4. Styrene-butadiene 5. Acrylic 6. Epoxy ; 7. Polyester 8. Polyvinyl Acetate, Styrene-butadiene or Alkyd 9. Alkyd
Brick, Cement Asbestos	1. Polyvinyl Acetate 2. Alkyd 3. Styrene-butadiene	1. Polyvinyl Acetate or Alkyd 2. Alkyd 3. Styrene-butadiene
Aluminum	1. Zinc Chromate	1. Alkyd
Galvanized Metal	1. Zinc Dust and Zinc Oxide, Zinc Chromate or Aluminum	1. Linseed Oil or Alkyd
Iron and Steel	1. Red Lead, Blue Lead or Zinc Chromate	1. Linseed Oil or Alkyd
Wood	1. Linseed Oil 2. Alkyd	1. Linseed Oil 2. Alkyd
Plaster	1. Alkyd or Polyvinyl Acetate 2. Polyvinyl Acetate or Styrene-butadiene 3. Acrylic	1. Alkyd 2. Styrene-butadiene 3. Acrylic

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Glazing Contractors: The Toledo Plate and Window Glass Co., Toledo—Abbott Glass Co., New York

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A striking showplace for L-O-F glass products, this new building has 1120 one inch Thermopane units, with Parallel-O-Grey outside panes, for fixed windows structurally sealed with Inlock Section 759228, and 1200 complementary $\frac{1}{4}$ " grey Vitrolux spandrel panels, positively sealed with Inlock Section 760161.

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General Motors Corporation, Dayton, Ohio

SOLAR SCREENS OF CLAY MASONRY: 1

by Howard P. Vermilya, A.I.A.

Much has been written about masonry solar screens as shading devices and about how they may be most effective in reducing the sun's heat,* especially for air-conditioned buildings, but little information has been given on their structural aspects.

From their very nature, screen walls are rarely, if ever, load-bearing and while they may be of a variety of materials, those using hollow clay or concrete masonry units are more generally used.

Structural stability is attained by providing the screen wall with lateral support at proper intervals and by avoiding excessive compressive loads. Lateral support may be obtained by cross walls, piers, buttresses or columns when the limiting distance between lateral supports is measured horizontally, or by floors and roofs when the limiting distance is measured vertically (ASA Building Code Requirements for Masonry). The distance between these supports may be computed by the use of the following formulas derived by the Structural Clay Products Institute. (For complete derivation, refer to the Institute's Technical Notes on Brick and Tile Construction, Vol. 8 No. 3.)

(1) for restrained ends

$$L = 6.33 \times t \sqrt{\frac{A_b}{w \times k}}$$

*See *Time-Saver Standards*, 3rd Edition, F. W. Dodge Corp., Page 39 "Short Cuts to Solar Angles" Hendrik P. Maas; *Solar Control and Shading Devices* by Olgyay and Olgyay, Princeton University Press.

(2) for simply supported ends

$$L = 5.17 \times t \sqrt{\frac{A_b}{w \times k}}$$

Where:

L=allowable distance between lateral supports in feet

t=actual wall thickness in inches

A_b=ratio of actual bed joint length in a horizontal longitudinal plane to the total wall length.

(A_b=1 for stack, running or common bond, and 0.5 for split bond patterns where each unit is lapped 1/2 over the lower unit.)

w=design wind pressure in pounds per square foot as taken from wind pressure map and wind pressure tables for height zones above ground.

Conditions Involved in Formulas

1. If the solar screen is supported by building it into a reinforced concrete structure, the end condition is fixed to a degree justifying the 1/12th moment coefficient used in Formula 1, while if the screen is supported on a steel shelf angle a 1/8th moment coefficient is indicated as in Formula 2.

Provisions should be made to anchor clay masonry solar screens to the building frame to prevent them from being sucked off their supports. The coefficient of static friction of

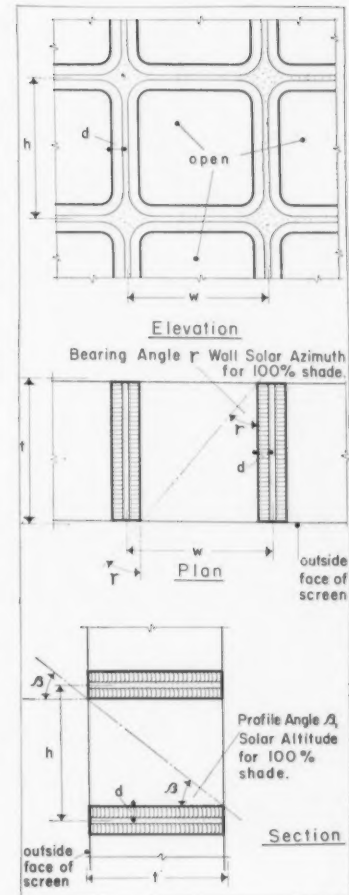


TABLE 1

Rectangular Sizes				Structural Data		Shading Data		Estimating Data				
Nominal Modular Dimensions in inches*			Specified Dimension in inches	Ratio of Solid Wall Area to Total Wall Area	Approximate Weight per sq. ft. of Wall Area in lb.	100% Shading		Units	Mortar			
h Face Height	w Face Width	l Length in Wall Thickness	d Shell Thickness			Profile Angle B	Bearing Angle r	No. per sq. ft. of Wall	Cu. ft. per sq. ft. of Wall Area		Cu. ft. per 1000 Units	
									1/2" joints	3/8" joints	1/2" joints	3/8" joints
4	8	6	3/4	.56	40	23°	49°	4.5	.092	.069	20.3	15.2
4	8	8	3/4	.56	54	17°	40°	4.5	.125	.094	27.8	20.8
4	8	12	3/4	.56	80	12°	29°	4.5	.193	.145	42.5	31.9
8	8	6	3/4	.39	30	49°	49°	2.25	.061	.046	27.1	20.3
8	8	8	3/4	.39	40	40°	40°	2.25	.088	.062	36.8	27.6
8	8	12	3/4	.39	60	29°	29°	2.25	.127	.095	56.5	42.4
8	12	6	3/4	.375	30	48°	62°	1.5	.051	.038	34.5	26.9
8	12	8	3/4	.375	40	39°	54°	1.5	.070	.052	46.6	35.0
8	12	12	3/4	.375	60	28°	42°	1.5	.108	.081	72.0	54.0
12	12	6	3/4	.34	25	61°	61°	1.0	.042	.032	42.0	31.5
12	12	8	3/4	.34	33	53°	53°	1.0	.057	.043	57.2	43.0
12	12	12	3/4	.34	50	41°	41°	1.0	.080	.06	88.2	66.1

*Manufactured dimensions are 3/4 in. to 1/2 in. smaller than the nominal modular dimensions shown, depending on the manufacturer.



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SOLAR SCREENS OF CLAY MASONRY: 2

by Howard P. Vermilya, A.I.A.

masonry on concrete, 0.70, and masonry on steel, 0.30, is not always sufficient to prevent horizontal movement of light-weight walls. Strap anchors can be employed to resist this movement.

Clay masonry screens which butt against or pass vertical members of concrete should be anchored in slots built into the concrete. Anchors, made of not less than 16-gage galvanized iron, should be at least $\frac{3}{8}$ -in. wide and spaced not more than 18 in. on center vertically.

2. Mortars for clay masonry units shall conform to ASTM standard specifications, "Mortars for Unit Masonry" C 270. Types M or S shall be used when the distance between lateral supports exceeds 0.7 of the maximum permitted by Formula 1 or 2; when the distance is 0.7 or less, Type N mortar may be used. Mortar bed joints should be completely filled.

3. For structural considerations, units in split bond should not lap over the units below less than one third of their horizontal projection area.

4. L, the distance between lateral supports, may be measured either horizontally between walls or columns or vertically between floor slabs or beams when stack, running or common bond is used, but only vertically when split bond is used. (A revision of Technical Notes on Bond and Tile Construction, Vol. 8, No. 3 is contemplated soon, to provide a formula to take care of rotary shear or torsion in the bed joints when a screen wall using split bond is supported horizontally.)

Example:

Location: Dallas, Texas, 5th Floor.

Material: 8-by-8-by-8-in. hollow clay units in stack bond.

Frame or supports: reinforced concrete.

Mortar: Type S.

Wind Pressure: Map shows 25 psf for Dallas. Table 3 shows 30 psf for wind at 54 ft (5 stories) from ground.

k: Table 1 shows 0.39 for 8-by-8-by-8-in. unit having shell thickness of $\frac{3}{8}$ in. with $\frac{3}{8}$ -in. mortar joints.

Ab: 1 for stack bond

t: 7.5-in. actual thickness

$$L = 6.33 \times 7.5 \sqrt{\frac{1}{30 \times .39}}$$

$$L = 13.9 \text{ Feet}$$

If solar screen had been laid in type N mortar, allowable distance between supports could not exceed 0.7 of 13.9 ft or 9 ft 9 in.

TABLE 2

Physical Properties of Clay Masonry Solar Screen Units

Raw Materials:

Units shall be made of surface clay, shale, fire clay or mixtures thereof.

Finish:

Exposed ends shall be uncured and reasonably free from cracks, chips, surface roughness and other defects detracting from the appearance of the wall when viewed from a distance of 20 ft.

Water Absorption:

Maximum per cent by 1 hr. boiling:

Where the weathering index is more than 100 (See Fig. 8)

Average of 5 units..... 9%

Individual units..... 11%

Where the weathering index is less than 100 (See Fig. 8)

Average of 5 tests..... 16%

Individual units..... 19%

Dimensional Variation:

Maximum variation plus or minus from specified dimension in width, w; height, h; or length, l..... 3%

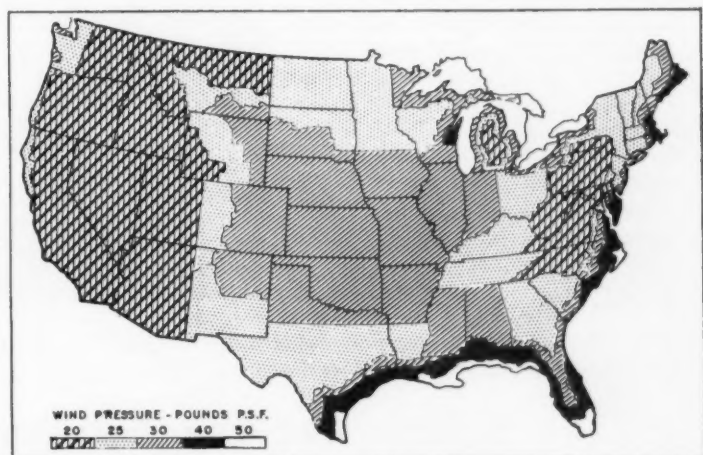
The shell thickness, d, shall be not less than $\frac{1}{8}$ in. under nor more than $\frac{1}{4}$ in. over the specified dimension given in Table 1.

TABLE 3

Wind Pressures for Various Height Zones Above Ground

Height Zone (ft.)	Wind-pressure-map areas (lb. per sq. ft.)						
	20	25	30	35	40	45	50
Less than 30.....	15	20	25	25	30	35	40
30 to 49.....	20	25	30	35	40	45	50
50 to 99.....	25	30	40	45	50	55	60
100 to 499.....	30	40	45	55	60	70	75
500 to 1199.....	35	45	55	60	70	80	90
1200 and over.....	40	50	60	70	80	90	100

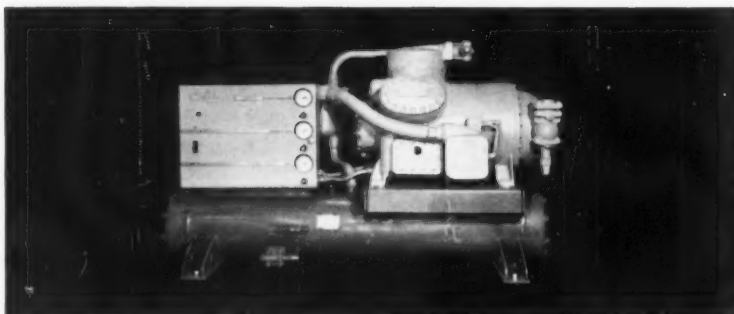
Tables from: Technical Notes on Brick and Tile Construction, Structural Clay Products Institute



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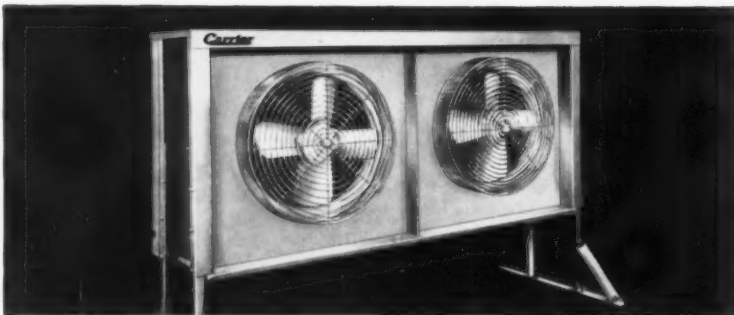
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9AB AIR-COOLED CONDENSERS

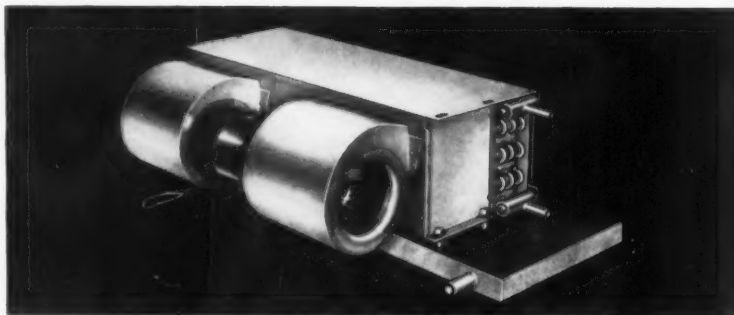
Skillfully engineered, laboratory tested, the new Carrier 15-ton condenser can be mounted on the roof vertically for an extremely low silhouette — or horizontally. Powerful direct drive fans move large quantities of air evenly across the entire surface of the coil — a factor that increases the efficiency by utilizing the full condenser capacity. Other Carrier air-cooled condenser units are available with horizontal discharge in three capacities — 5 tons, 7½ tons and 10 tons.



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* Reg. U. S. Pat. Off.



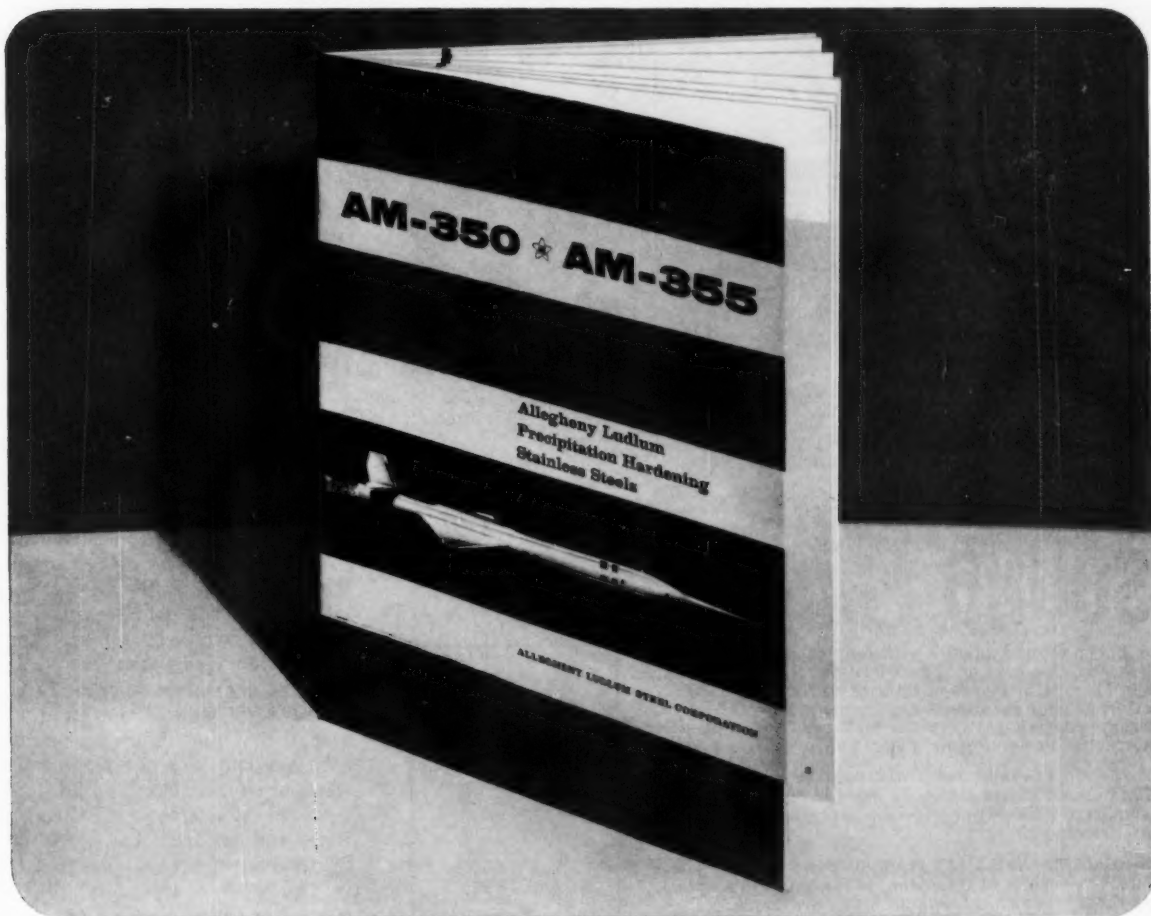
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Product Reports

continued from page 233

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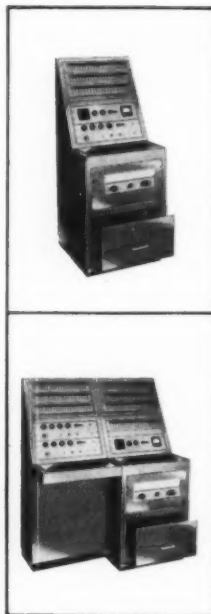
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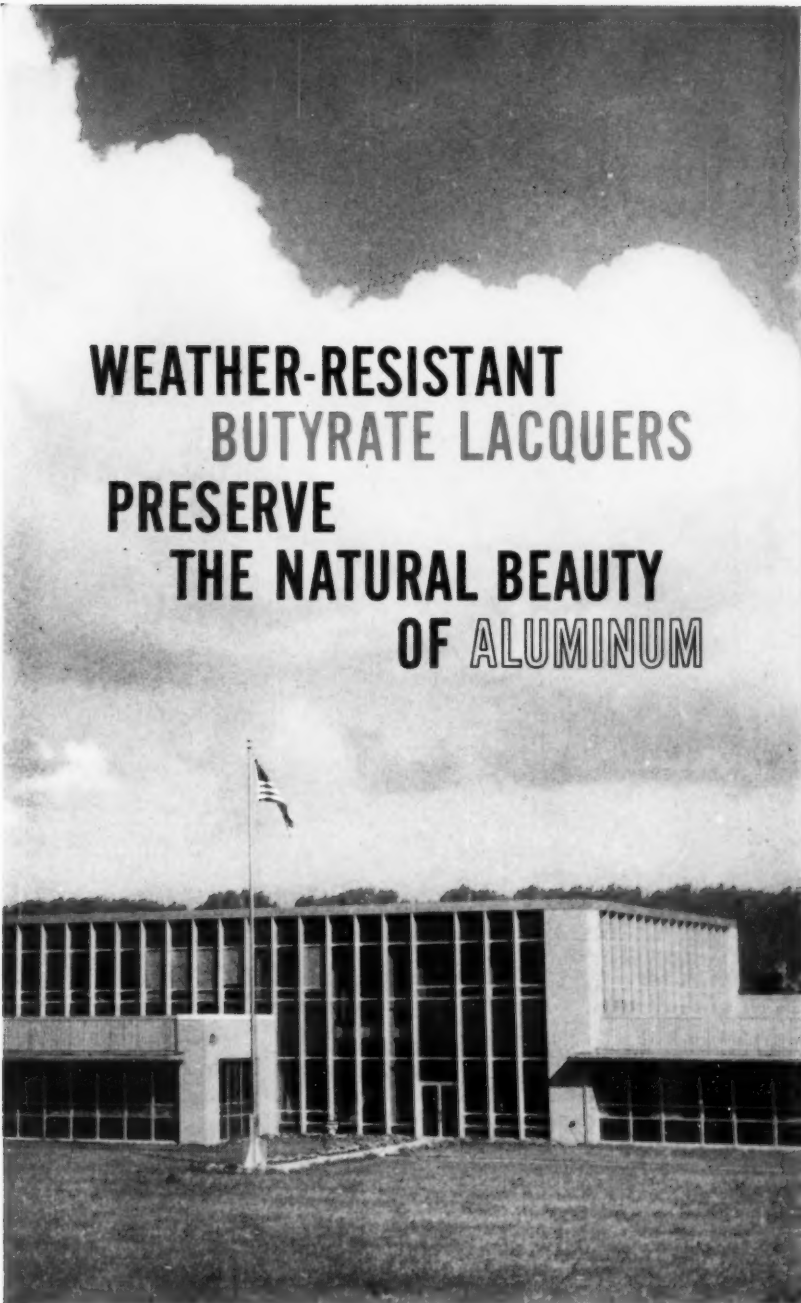
Gilded buildings will be a hallmark of the "Fabulous Sixties" if the manufacturer of a new 23-karat gold coating has anything to say in the matter. The Hanovia Liquid Gold Division of Engelhard Industries has recently produced organic solutions of gold which can be applied to virtually any building product—porcelain enameled steel, stainless steel, ceramic tile, glazed brick, structural glass, ad infinitum. The gold solution is applied to their surface by such conventional methods as brushing, rolling or spraying, or by such unconventional methods as silk screening, rubber stamping and stippling for special effects. The coated components are then fired in an oven to eliminate all constituents of the solution except the gold, leaving a continuous film whose final finish—matte to "brilliant"—depends on the texture of the original surface. Though the layer of gold is very thin (for economy), it is highly resistant to abrasion and will not peel or flake off. And since it is pure gold, it has gold's usual resistance to chemicals, water and sun. *Hanovia Liquid Gold Div., Engelhard Industries, Inc., One W. Central Ave., East Newark, Harrison Post Office, N. J.*



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more products on page 248



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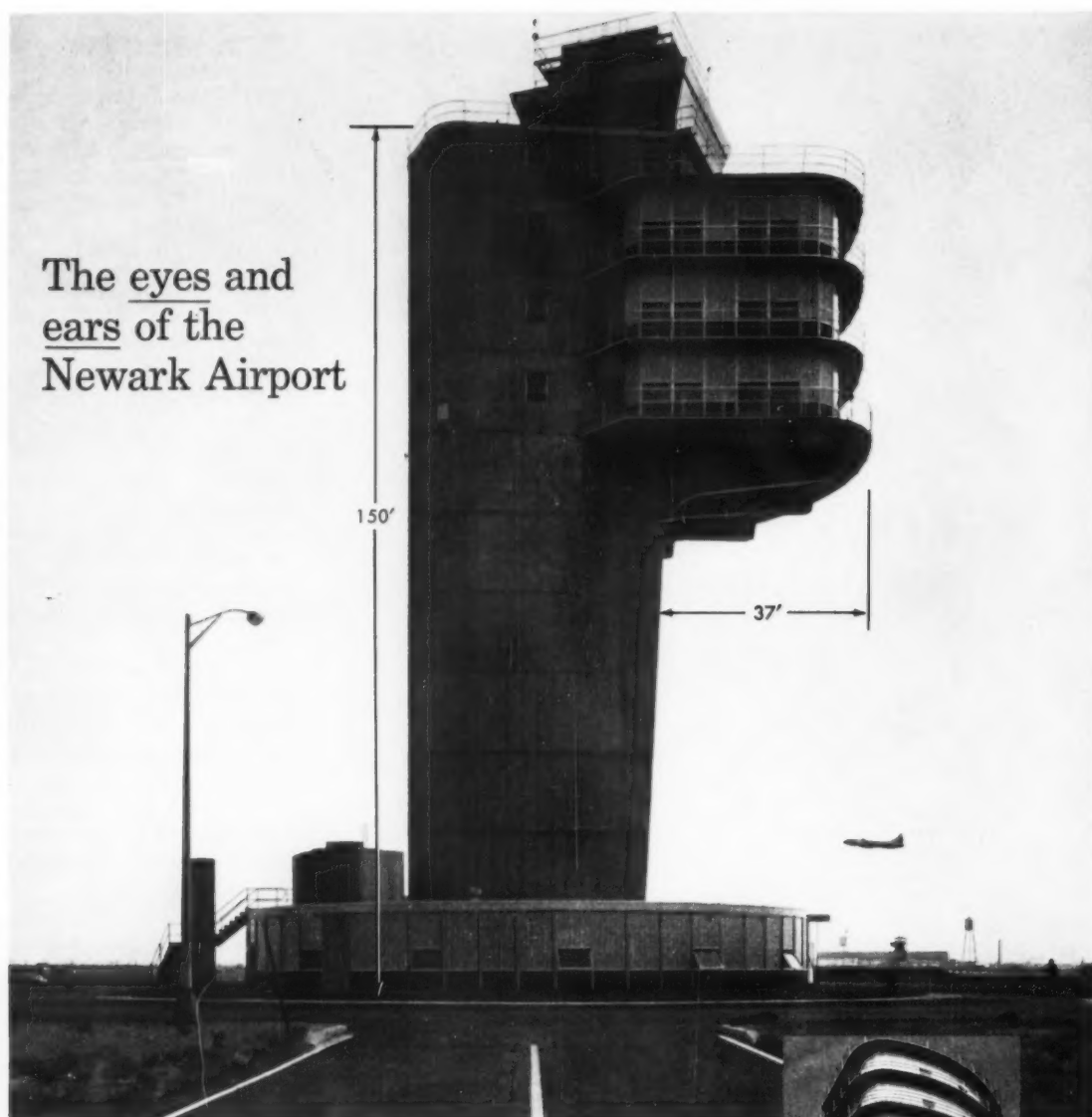
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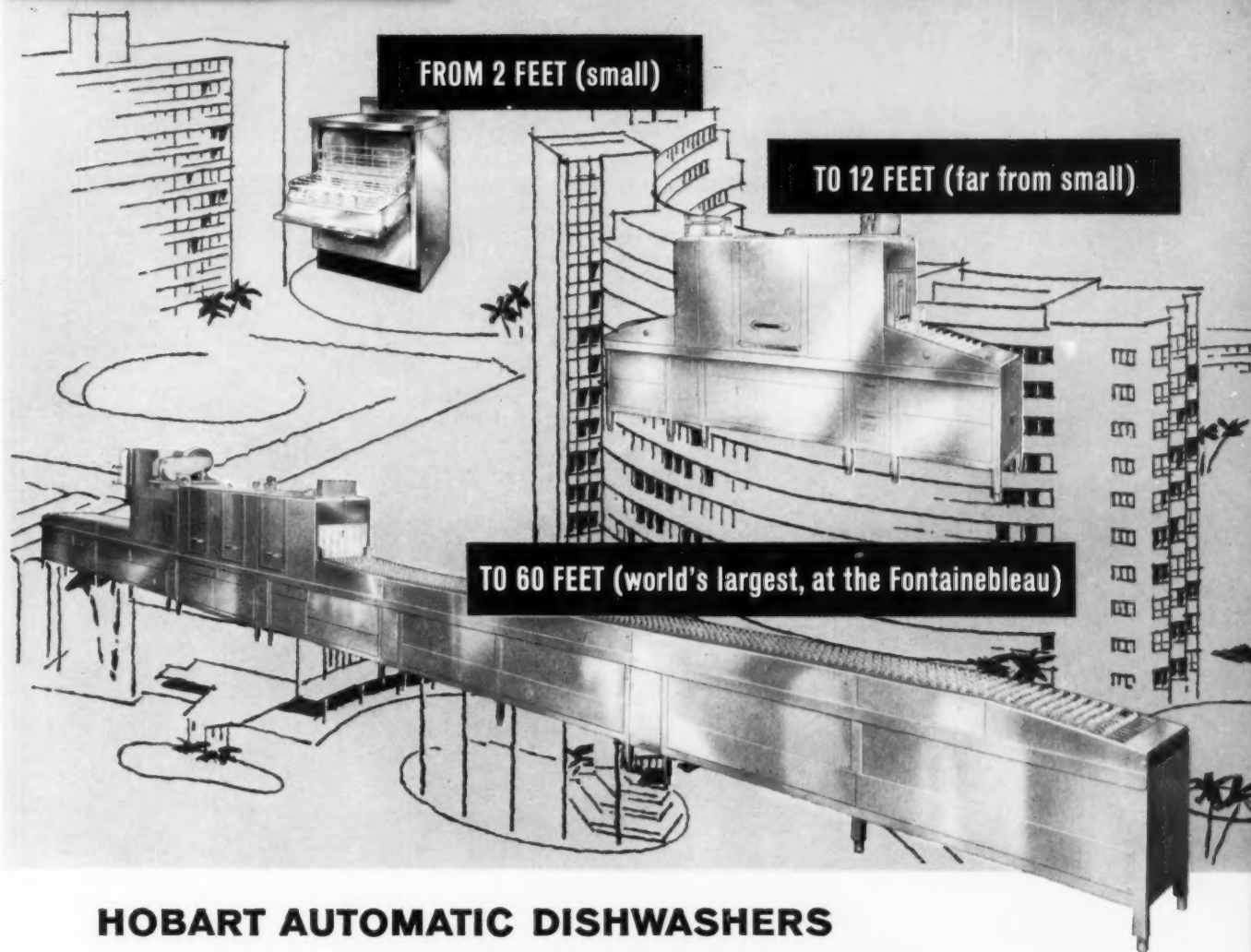
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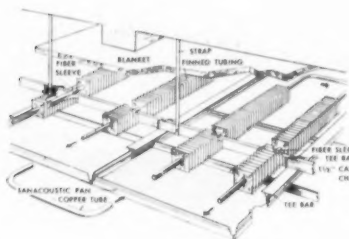


CM



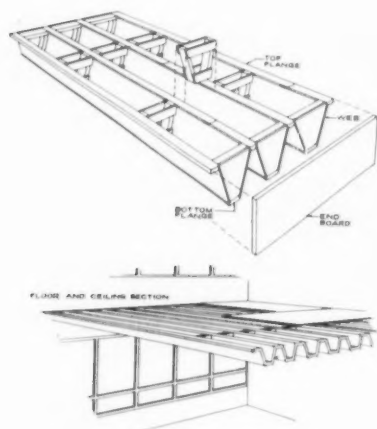
GM

SERIES OF MODELS



Radiant-Acoustic Ceiling

In addition to providing draft-free radiant heating and cooling, the new *Sanacoustic HCS* ceiling system is said to absorb up to 90 per cent of the sound that strikes it. The system is made up entirely of standard components—water-carrying coils, a sound-absorbing insulating blanket, and perforated metal panels which form the finished ceiling—and is said to be easy to install and economical to maintain. It also leaves the floor area free, permits fan rooms and risers to be smaller, and makes it possible to eliminate 50 to 75 per cent of the ductwork that would otherwise be required. *Johns-Manville Corp.*, 22 East 40th St., New York 16, N. Y.



Trough Structure of Plywood

Trofdek is an application of the folded plate idea in which sheets of plywood are glued to light lumber stiffeners in a series of miniature troughs, producing a roof or floor component with exceptionally light weight. The new component, which is being manufactured in the U. S. by member firms of Plywood Fabricators Service, Inc. (an affiliate of Douglas Fir Plywood Assn.), is particularly suitable for long spans, and has been used for roofs, floors and concrete forms. The troughs are

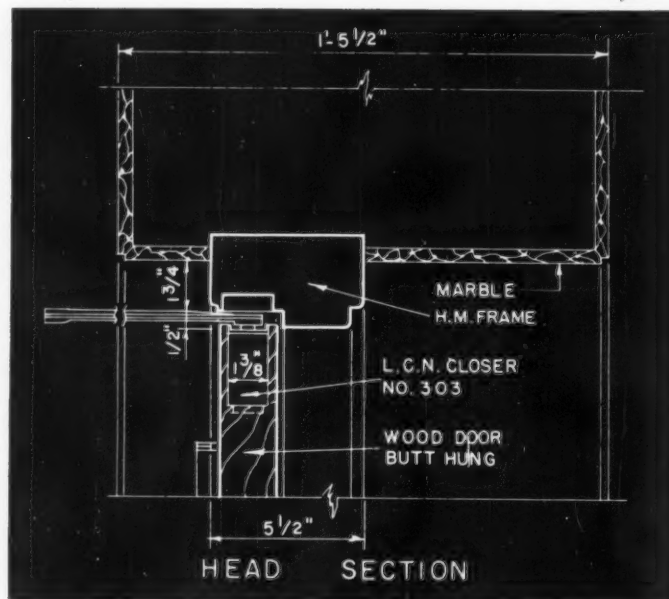
joined on a 16-in. module running parallel to the span and vary in depth from 5 1/4 to 15 1/2 in. depending on the load. Technical data, design information and construction details are available from: *Plywood Fabricators Service, Inc.*, 3500 E. 118th St., Chicago 17, Ill.

Double-Duty Chalkboard

Colorlith, a lightweight, rigid material composed of cement, asbestos and selected pigments, not only pro-

vides the hard, smooth writing surface and light reflectance required of high-quality chalkboards, but also is strong enough for use on between-room and free-standing partitions, and as a double-duty surfacing for wardrobe panels, flush doors and walls. It comes in brown, green and gray, as well as in white for use as a projection screen. *Johns-Manville Corp.*, 22 East 40th St., New York 16, N. Y.

more products on page 260



CONSTRUCTION DETAILS

for LCN Closer Concealed-in-Door Shown on Opposite Page

The LCN Series 302-303 Closer's Main Points:

1. An ideal closer for many interior doors
2. Mechanism concealed within door; flat arm not prominent, and provides high closing power
3. Door is hung on regular butts
4. Closer is simple to install and to adjust
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LCN CLOSERS, INC., PRINCETON, ILLINOIS

Canada: Lift Lock Hardware Industries, Ltd., Peterborough, Ontario

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TRINITY LUTHERAN CHURCH
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LCN CLOSERS, INC., PRINCETON, ILLINOIS

Construction Details on Opposite Page

Gilbert A. Johnson, Architect





EXQUISITE ARCHITECTURE

by MINORU YAMASAKI

EXQUISITE COMFORT

by *Marlo* AIR CONDITIONING

A winter-summer climate control system incorporating Marlo Spray Type Dehumidifiers and Central Station Units provides round-the-calendar comfort for employees and visitors in this superbly-designed building — Reynolds Metals Company's new Great Lakes Region Headquarters.

General contractor for the project was Darin & Armstrong; Consulting engineer, Charles Whitney; Mechanical contractor, Green Plumbing and Heating, Inc.

Marlo

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Quality Air Conditioning and Heat
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5936



Sage Green Marmorite
semi-circular—
harmonizing pedestal.



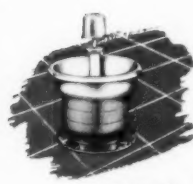
Stainless Steel
Bradley—Sky Blue
Pedestal.



Semi-Circular
Stainless Steel—
Citrus Yellow Pedestal



Vari-Colored Marmorite—
Citrus Yellow Pedestal.



Stainless Steel 36"
Bradley—Sun Tan
Pedestal.

NOW
FROM
BRADLEY
HARMONIZING
COLOR
COMBINATIONS
FOR THE
WORLD'S
MOST
SANITARY
WASH
FIXTURES



Today's schools, colleges, institutions and factories are clean, good-looking and made even better through the use of color.

Now Bradley offers *color combinations* so that architects and designers can use the warmth and attractiveness of Bradley colors in washrooms, hallways, classrooms, in alcoves near lunchrooms—at no extra cost.

Bradley stainless steel washfountains are now available with six harmonizing pedestal colors in addition to standard metallic. Bradley Marmorite bowls in four colors and Vitreous Enameled Washfountains in six colors make many pleasing color combinations available to you!

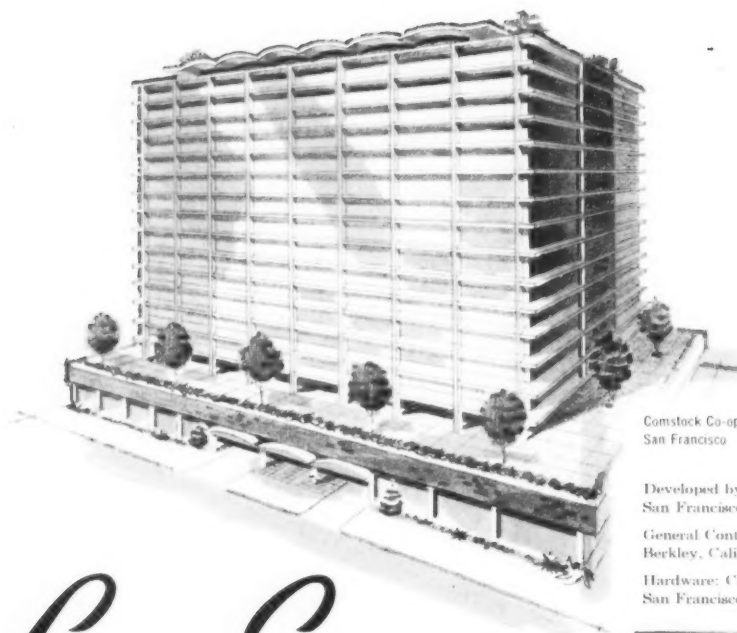
Bradley Washfountains are famous as the standard against which all other wash fixtures are measured. Their *foot control* leaves hands completely free to wash in clean, tempered, running water. They are self-rinsing, stay clean longer and require far less maintenance than ordinary fixtures. They save water, provide more facilities in less space and cost less to install.

And now Bradley's harmonizing color combinations make beauty and utility synonymous.

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BRADLEY
washfountains





Comstock Co-operative Apartment
San Francisco

Developed by: ALBERT-LOVETT CO.,
San Francisco

General Contractor: The Pacific Co.,
Berkley, California.

Hardware: California Builders Hdwe Co.,
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HAGER *Luma-Sheen* FINISH

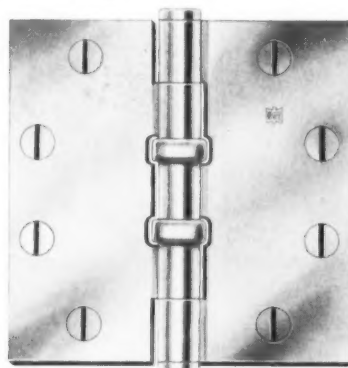
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Luma-Sheen finish
Available...on Brass or
Steel Butts—Specify LS

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Its electrolytic finish has the true aluminum color . . . *permanized*. It's been proved in practically every conceivable situation.

When you want it to stand up to the test of time specify Hager LUMA-SHEEN (symbol LS) on that next job!

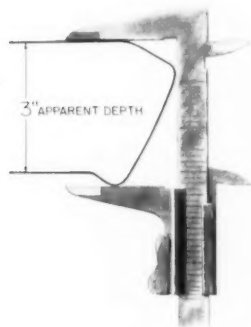


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Designed with flair and detailed with exquisite finesse, Reynolds' new Regional Headquarters Building in Detroit is a major landmark in the architecture of this community-conscious corporation. The structure succeeds as a self-assertive display piece, but it presents its message in remarkably pleasing tones—thanks to the art of architect Yamasaki and his associates. As a major supplier of glass for the Reynolds Building, we are pleased to see our products in such skillful mating of materials—and used so imaginatively in their own right. American-Saint Gobain Corporation.

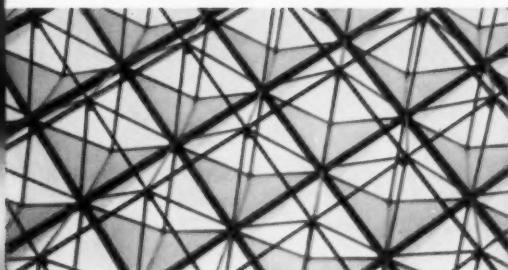
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*Skylight Manufacturer: Super Skylight Products Company
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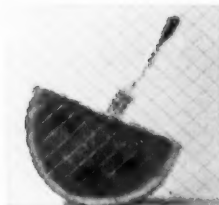
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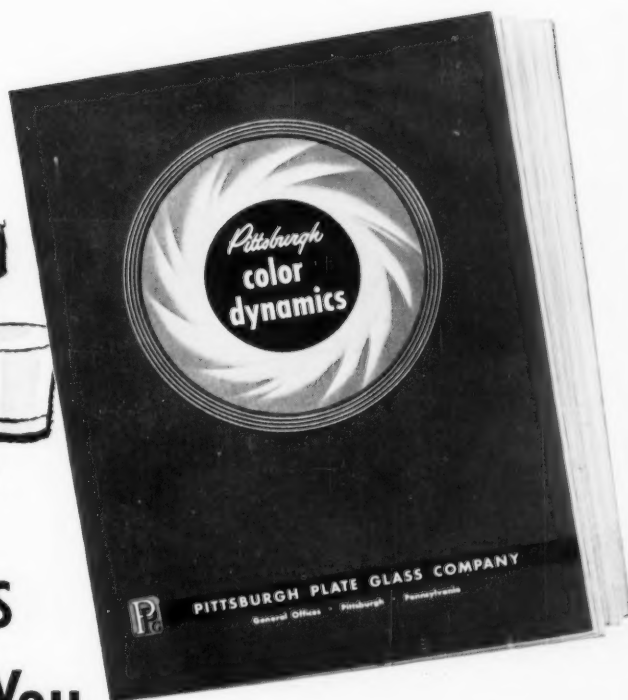
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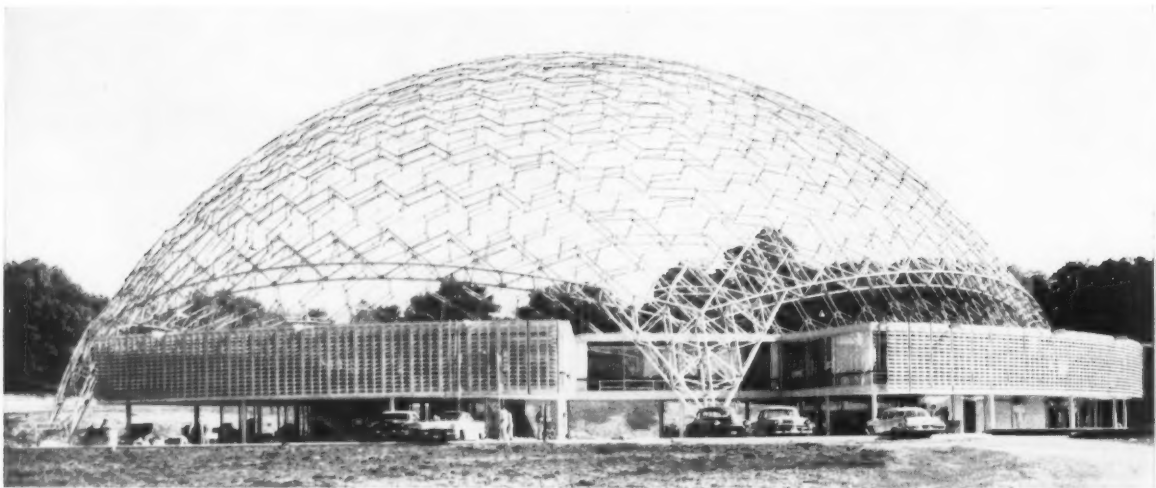
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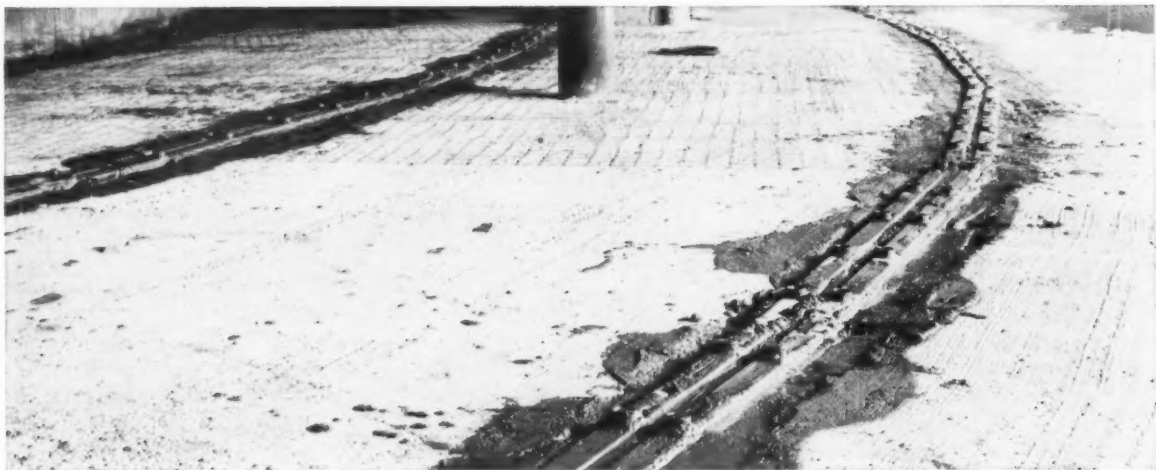
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Ultramodern ASM headquarters at Metals Park, Novelty, Ohio demonstrates geodesic dome construction. *Architects:* John Terence Kelly, Cleveland, Ohio; *General Contractor-Engineering:* Gillmore-Olson Co., Cleveland, Ohio; *Electrical Engineers (Plans & Specifications):* John Paul Jones, Cary & Millar, Cleveland, Ohio; *Electrical Sub-Contractor:* Doan Electric Co., Cleveland, Ohio.

Nepcoduct fits the job perfectly at ASM's New Geodesic Dome Headquarters



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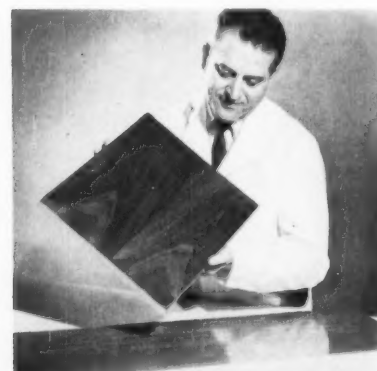
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Product Reports



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more products on page 264

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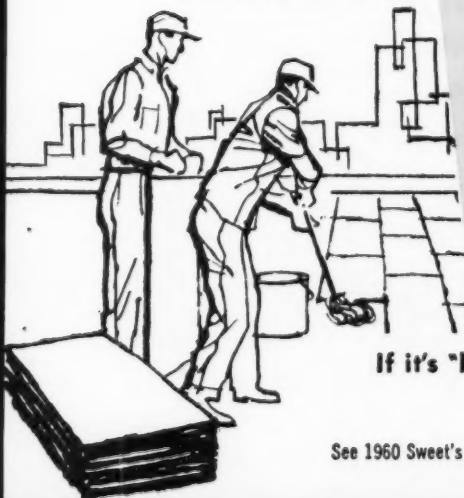
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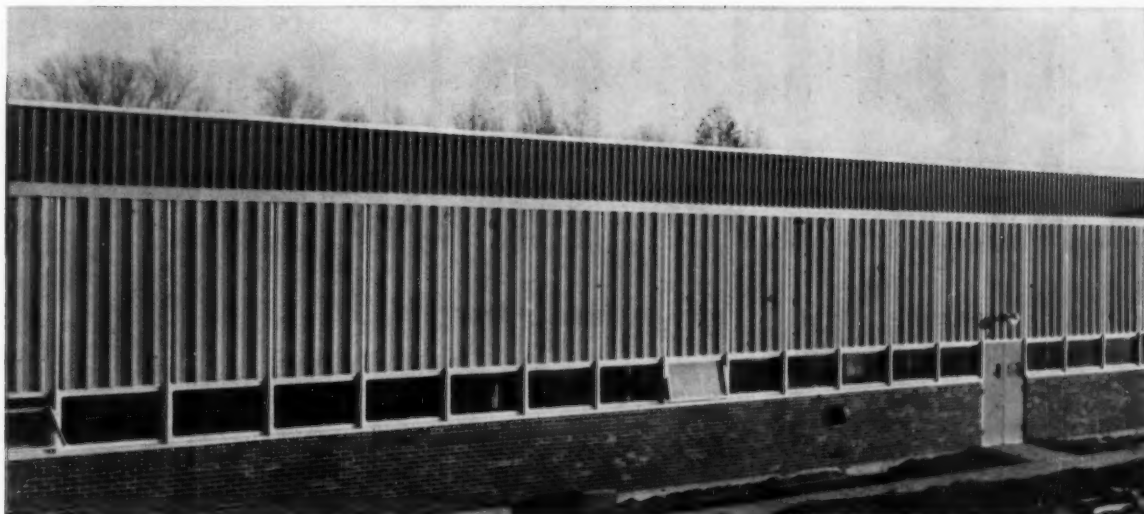
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Site: New Transistor Plant, Philco Corporation, Lansdale Division, Lansdale, Pa.

General Contractor: Wallace Engineering & Construction Co., Philadelphia.



For complete specifications on EGSCO products, see Sweet's Files: 3a/Sm, 8b/Sm, 8b/Sm, 2a/Sm, 2c/Sm, or write direct to:

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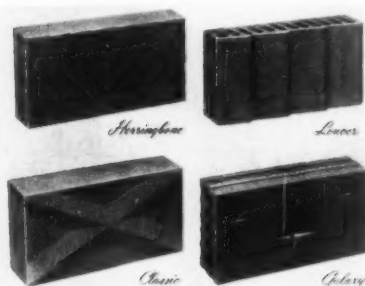


Product Reports



Prefab Form for Concrete Stairs

A new prefabricated metal form for reinforced concrete stairs comes complete with metal risers; reinforcing and temperature rods; plate, channel or angle stringers; and brackets and nosings if specified—all welded into a rigid one-piece unit, ready to receive the concrete pour with a minimum of additional forming. Each unit is constructed to the exact specification of the architect, although there are standard riser and railing types he may choose from if desired. Advantages to the architect include flexibility of design, accuracy in dimensions and in the spacing of reinforcement, better finish, lower material and labor costs, and greater speed of erection. *Stair-builders, Route 66, McCook, Ill.*



Sculptured Structural Tile

A new series of sculptured glazed structural ceramic tile units were designed to permit greater versatility of design, when used as decorative inserts or for overall patterns and textures. The 8-by-16-in. units come in four patterns as shown, and in all Stark colors and glazes. *Stark Ceramics, Inc., Canton 1, Ohio*

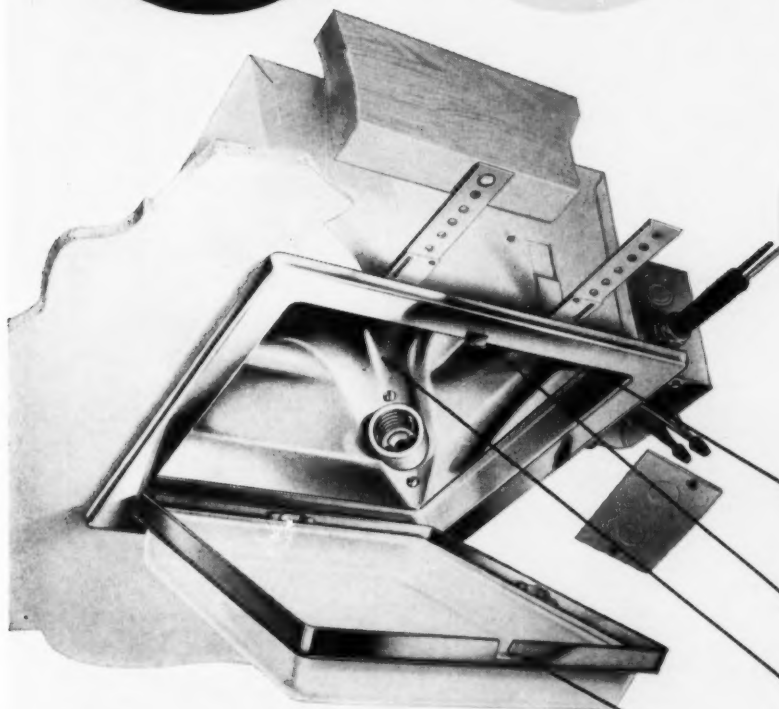
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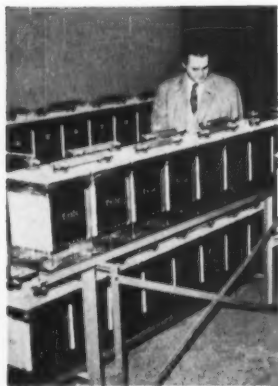
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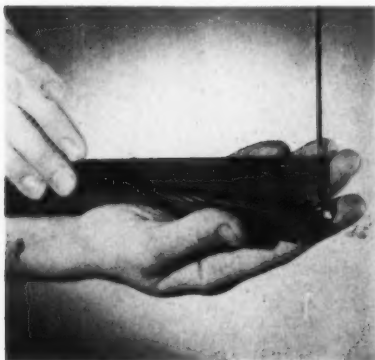
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Product Reports

One-Coat Plastic Wall Coating

Poly-Wall, an acrylic copolymer vinyl flat wall finish for use over new plaster, wall-board or previously painted surfaces, is designed to be applied in one-coat with brush, roller or spray. It is self-sealing, odorless, easy to apply, quick-drying and scrubbable, and comes in 20 colors. *Mathews Paint Co., 598 West Ave. 26, Los Angeles 65, Calif.*



Window Gasketing

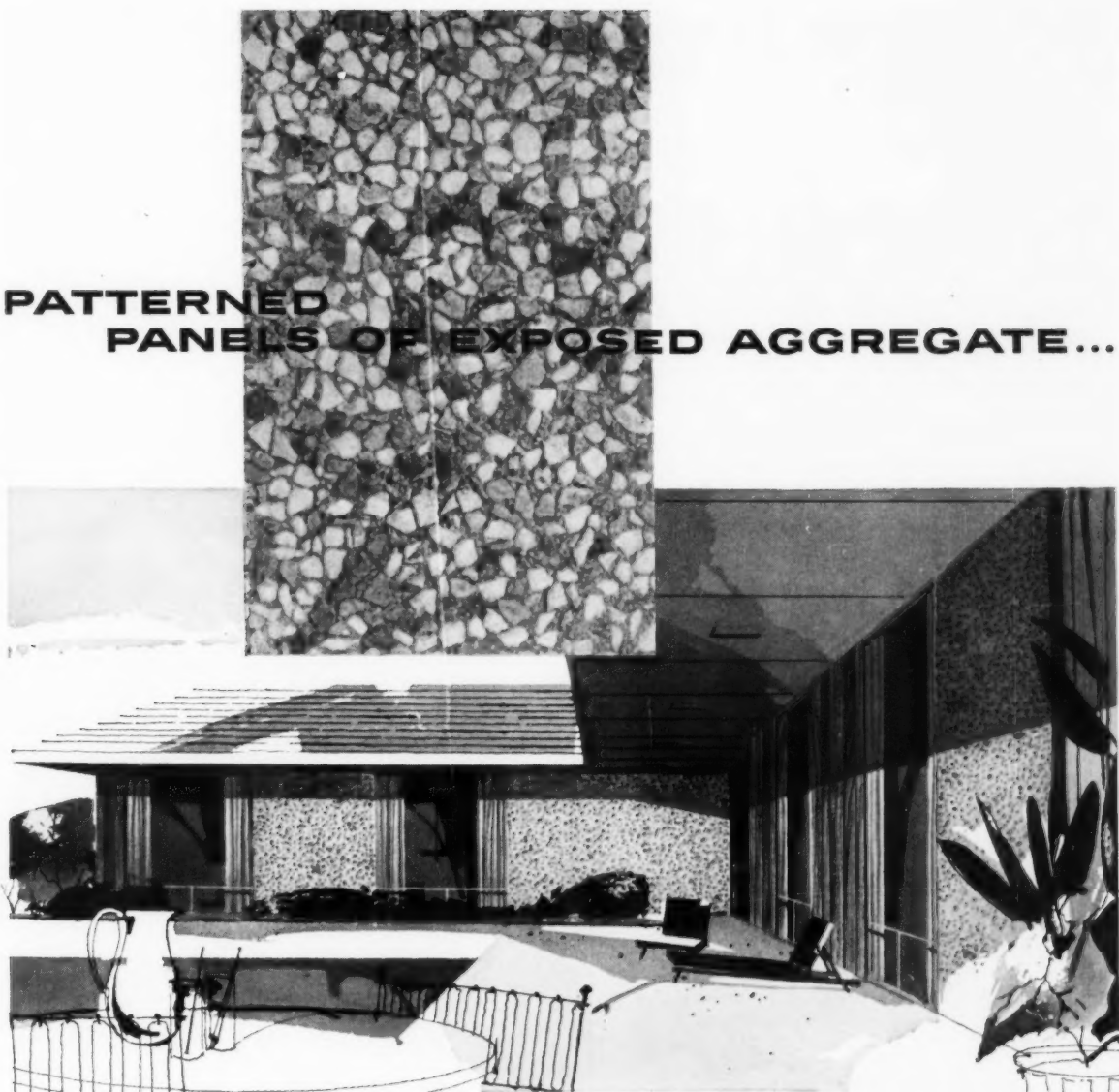
A synthetic rubber gasketing and stripping material called *Climatite* has been developed to serve as an anchor and cushion for large panes of glass, protecting them from wind shock and vibration damage. The gasketing is extruded and formed into perimeter gaskets with molded or vulcanized corners to meet the architect's specifications. It is a custom product, available in different shapes to conform to the structural design of the glass walls. Such gaskets have been extruded to encase double-pane insulating glass up to 15 ft in height or length. Included in the line is an adhesive-backed rubber stripping designed for use with various glazing compounds. *The Firestone Tire and Rubber Co., 1200 Firestone Parkway, Akron 17, Ohio*

Custom Wool Cut-Pile Carpets

The *Custom-Wai* collection of custom wool carpets includes five qualities, all densely packed cut-pile ranging from low to shaggy in pile depth and \$11 to \$27 per sq yd in price, which may be made up in any specified color, size and shape, either as rugs or as wall-to-wall carpet. Rugs may be finished with dyed-to-match wool fringe, or with machine-beveled edges. *Waite Carpet Co., Oshkosh, Wis.*

more products on page 272

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in stainless steel

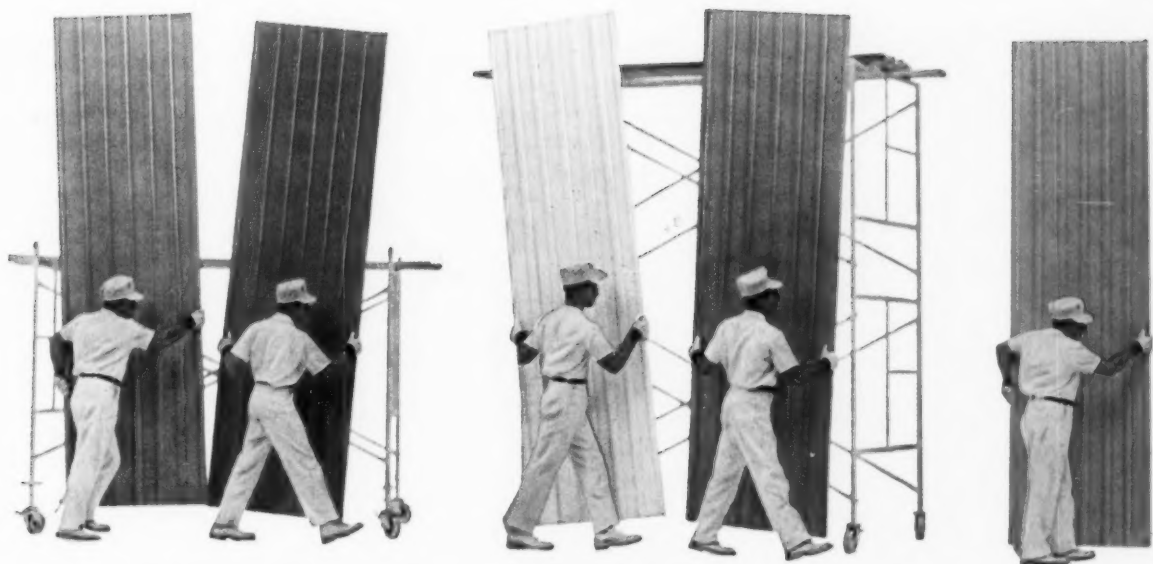
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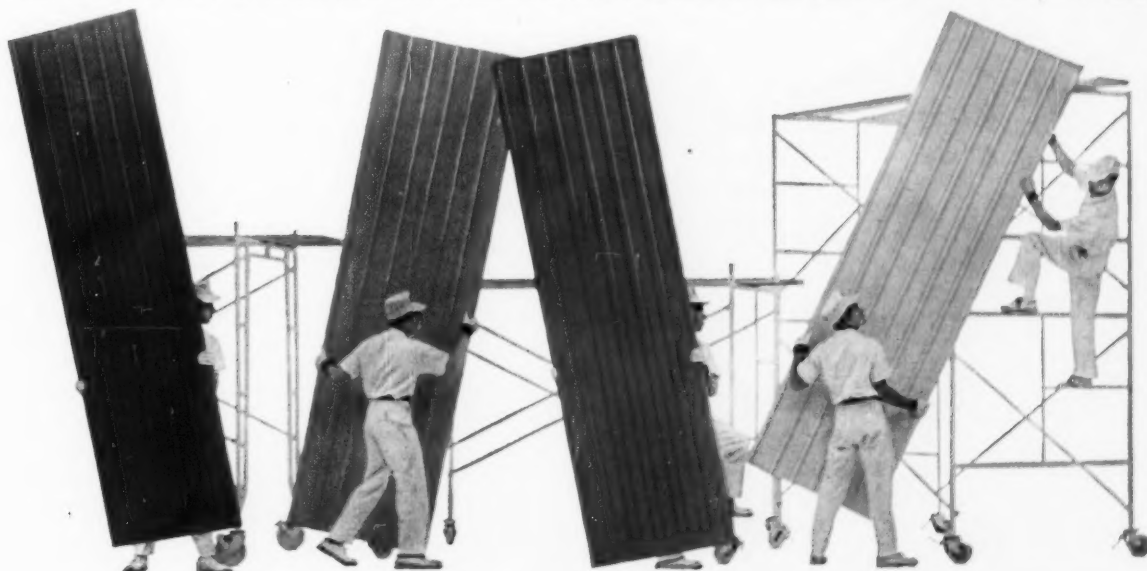
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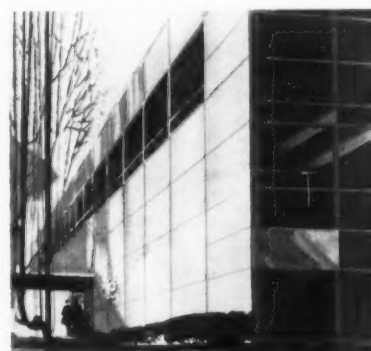


Builders of A Complete Line of Sectional Overhead Doors



Product Reports

Fireproofing for Lightweight Steel
Red Top Firecode plaster, a new material formulated for direct spray fireproofing of lightweight steel beams and various types of steel deck units, is said to offer major savings in weight and cost. Since the plaster itself is light in weight, and less of it is needed to provide required fire resistances, the weight and size—and hence the cost—of foundations, columns and beams is reduced accordingly. Direct spray application also cuts labor costs. The product offers a wide range of fire ratings—in some instances as high as 4 hours—depending on the thickness of the coating and the type of deck to which it is applied. *United States Gypsum Co., 300 W. Adams St., Chicago 6, Ill.*



Load-Bearing Panel Wall System

Stran-Wall, a new panel wall system for one and two-story structures, consists of a lightweight load-bearing steel structure, porcelain curtain wall panels, and the necessary aluminum extrusions and attachments. The framing itself is quickly and easily assembled by welding or self-tapping screws; the panels slip into slots and grooves in the framing; and aluminum mullions, jambs, sills and headers are designed to be snap-fit or attached to the structure by concealed screws. Other design features include a water seal and ventilation to reduce condensation, and a choice of hopper, fixed and projected windows. According to its manufacturer, the *Stran-Wall* system is designed to go up faster, easier, and at considerable savings over conventional steel frame plus curtain wall systems. *Stran-Steel Corp., Div. of National Steel Corp., Detroit 29, Mich.*

more products on page 280

DESIGNS OF DISTINCTION IN BRONZE

Architects and building owners agree that the copper alloys provide the much desired change in architectural metals. Here are two more distinguished examples showing the broad variety in texture, form, and warm, rich color available to translate architectural concepts into reality. Modern design, as shown here, does not require special production of intricate shapes. Instead, economical use is made of standard bars, channels, angles and formed sheet metal.

For more outstanding examples and fabricators' detail drawings, write for "Architectural Metals by Anaconda." This 64-page book is the first comprehensive publication on the architectural uses of copper and copper alloys. It gives practical and detailed information on the available metals, their compositions, colors, forms, physical properties, finishes, maintenance and suggested specifications. For your complimentary copy write: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass, Ltd., New Toronto, Ontario.



Write today on your firm's letterhead requesting your copy of *Architectural Metals by Anaconda*. Publication B-15.

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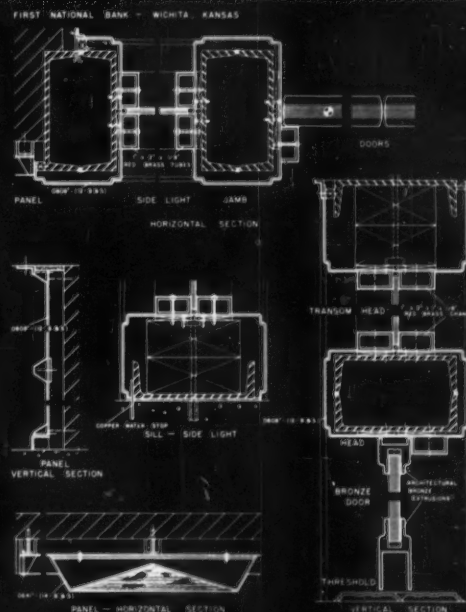
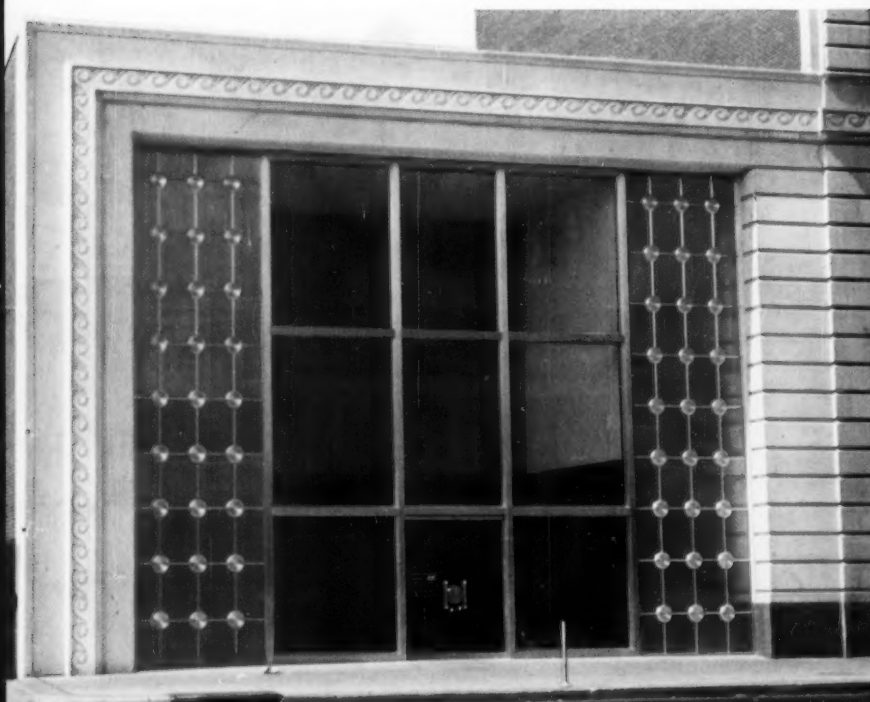
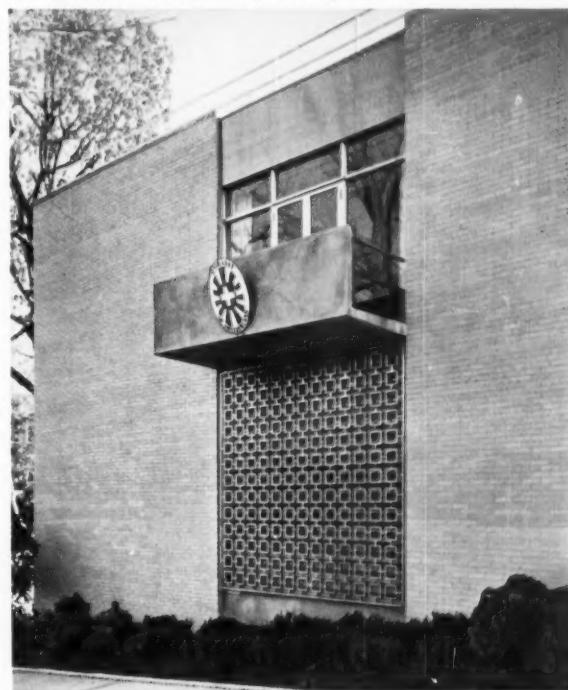
ARCHITECTURAL METALS

Made by The American Brass Company

First National Bank, Wichita, Kansas (below). This facade of bronze and glass illustrates the beautiful effect accomplished by applying a statuary finish to some of the bronze work and leaving other components in the natural, bright finish of the metal. The installation consisted largely of sheet metal, flat, spun, or formed with a press brake. Standard sizes of drawn red brass channels and rectangular tubes were used for the stops in the glass area; and extruded shapes for the door rails, panel dividers, and thresholds. ARCHITECT: Forsblom & Parks, Wichita. FABRICATOR: The Alumiline Corporation, Pawtucket, R. I.



Embassy of Switzerland, Washington, D. C. (above and below). Bronze metals in sheet, rectangular tube, and extrusions were used by the fabricator to execute the architect's designs for spandrels, mullions, fascias, and columns. The grille (below), seemingly of solid bars, is actually fabricated from standard size, rectangular red brass tube. ARCHITECT: William Lescaze, New York. FABRICATOR: A. F. Jorss Iron Works, Arlington, Virginia.



OZALID NEWSLETTER

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAFTING



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master, select a different colored film, and run them as you did the first pair. When you're all through, overlay the films in sequence and tape them into register. Your result is a composite color chart that's very dramatic... very convincing!

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When it comes to cost estimating...

...there's nothing like a handy white-printer to cut preparation time of cost estimates, according to the Stackpole Carbon Company, St. Mary's, Pa. The company's Supervisor of Cost Estimating has just written us a letter on the subject which we pass on to you verbatim. "Our estimates are made in pencil on printed translucent vellum in pad form. These are reproduced on specially cut and punched Ozalid copy paper. Originals carry only basic information that has to remain constant. And from the originals we produce duplicate originals on Ozalid sepia line intermediate paper (#402 IT) as required, and these are used until the basic information is obsolete. To revise a cost, it is only necessary to add current rates and extend. With this simple Ozalid method we have eliminated typing, proof-reading, and copying errors."

The Supervisor goes on to say that Stackpole uses Ozalid copying in many other areas of its business because of convenience and economy. Perhaps we'll be able to tell you about these uses in a future *Newsletter*.

Here's what 100 usable feet per minute can do for you

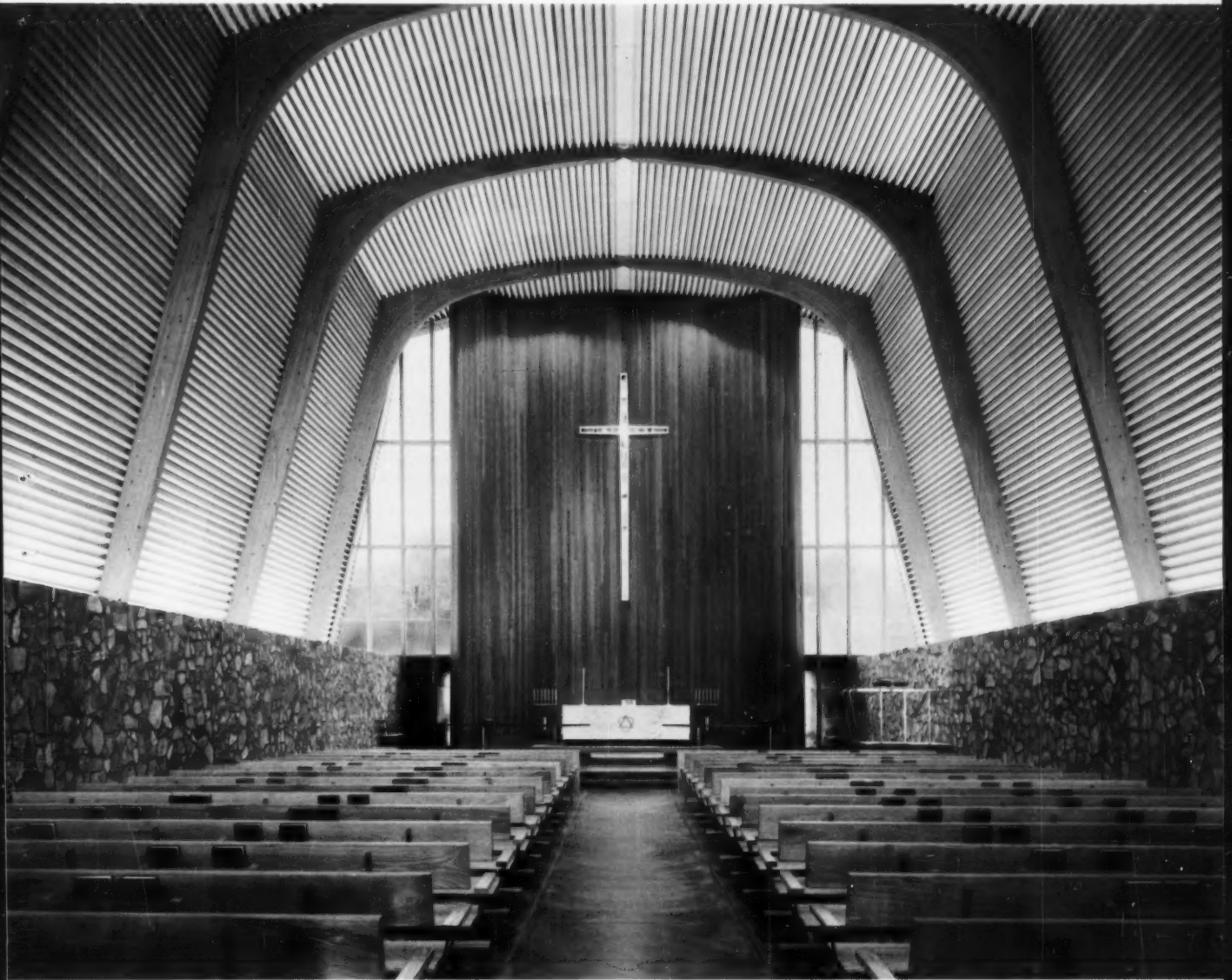
Speed up your production? Of course! But that's only the beginning. Look at it this way. One Printmaster 1000* working at a usable 100 feet per minute matches the output of several smaller, slower machines *but takes up less valuable floor space while handling widths up to 54 inches!* You save on production time and costs due to higher working speeds! And the Printmaster 1000 is probably the toughest, most durable unit ever produced. This means even greater savings in downtime and service charges. Our first recommendation for any shop having heavy work loads is this 100-foot champ... the Printmaster 1000.

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Trinity Lutheran Church, Walnut Creek, California. Architects: Belluschi and Skidmore, Owings and Merrill, San Francisco. Structural engineer: Isadore Thompson. Contractor: Fred von Guenther.

Space provided: nave seating 299 people; choir loft with seating capacity of 40; mothers' room and rest room; men's rest room; sacristy; vestry; equipment room. *Structural framing:* glulam arches spaced at 14'-9". *Exterior walls:* Port Orford cedar siding over plywood web and aluminum foil insulation; stone veneer. *Interior walls:* exposed stone; plywood with 2" x 2" strip-

ping. *Heating and ventilating:* warm air heating with provision for future summer cooling system. *Lighting:* indirect lighting by special incandescent fixtures under windows. Lights are directed upward through windows and are reflected downward by the ceiling. *Roof:* built-up roofing with Dolomite aggregate surface. *Area:* 6,500 square feet. *Cost:* \$13.90 per square foot.



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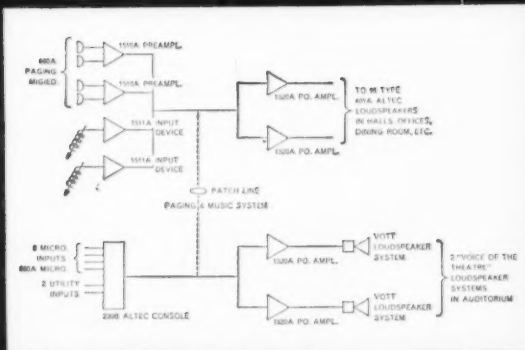
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See our catalog in Sweet's Architectural File 34/AL;
Industrial Construction File 17e/AL, 1960 Edition

*H. A. Roseberry & Sons, Inc., Detroit



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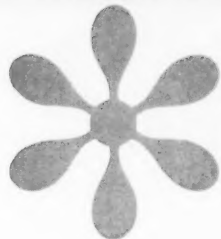
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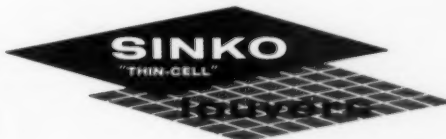
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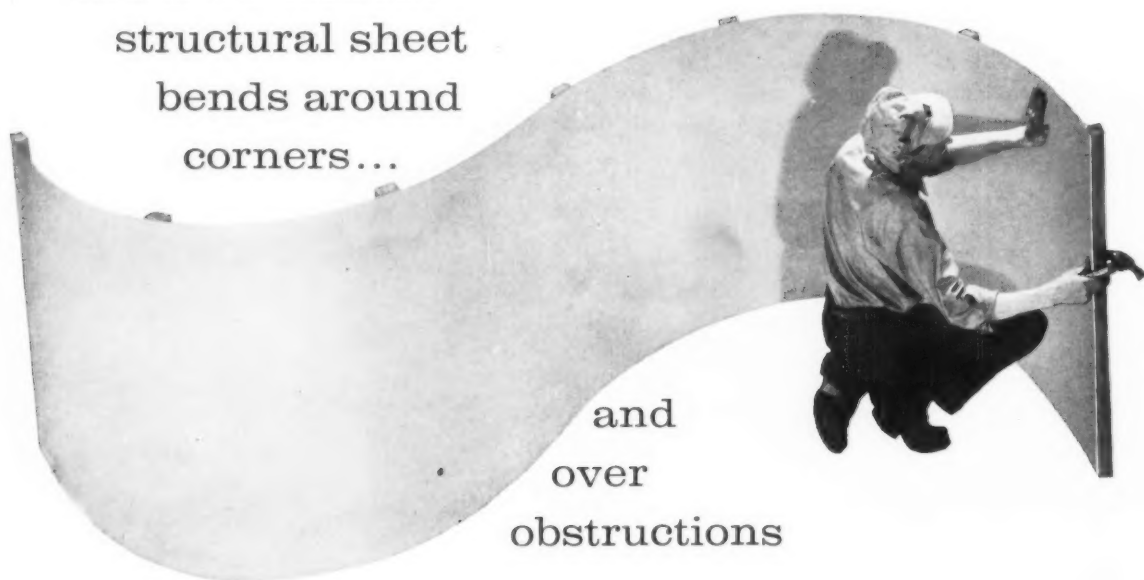
We invite you to write for Bulletin 32A which gives you complete details on Sinko THIN-CELL Louvers.



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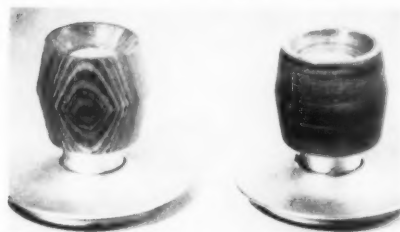
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Product Reports



Laminated Wood Door Knobs

Stratawood decorative door knobs are made of a tough combination of resin bonded layers of thin wood shaped to fit comfortably in the hand. Available with either vertical or horizontal graining, the knobs are durable as well as decorative; will not check or crack. P. & F. Corbin Div., American Hardware Corp., New Britain, Conn.



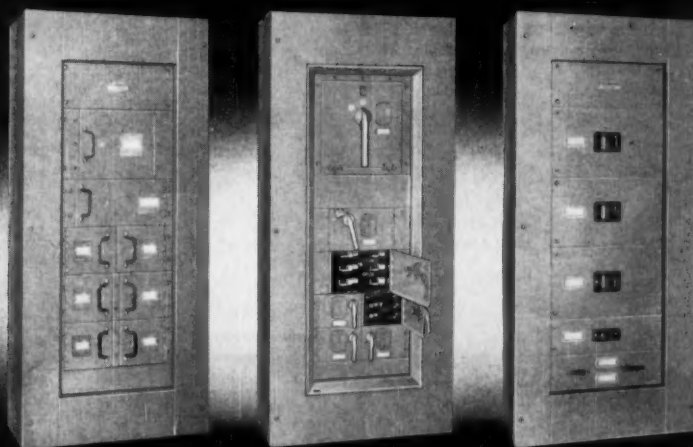
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more products on page 284

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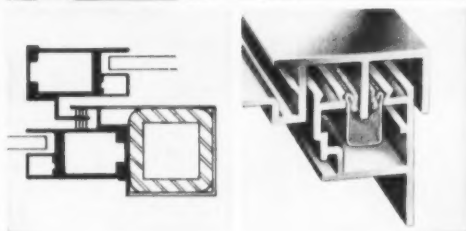
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(Left). Detail shows steel tube, aluminum encased, load bearing mullion as integral part of frame.

(Right). Weatherseal is more than a part—it's also how the door maker relates it to the total door design. Miller's engineered method results in a smooth, easy sliding door that seals securely around the entire perimeter of opening vent.

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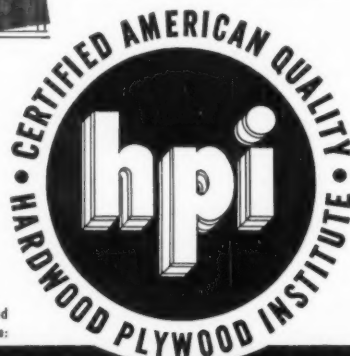


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Pre-Enameled Aluminum Products

The new line of *Colorweld* aluminum building products features pre-enameled color finishes so durable they can withstand heavy embossing and stamping operations without damage. Because of the resulting drop in fabricating and finishing costs, the items in the line will be lower in price than any colored aluminum products now on the market. They include 4- and 8-in. ribbed siding, V-beam roofing and siding, and

insulated field-assembled panels in a choice of 20 standard colors. In addition, a custom color service in a new *Reynocolor* line will offer other stock building products spray-enameled to any color specification. *Reynolds Metals Co., Richmond 18, Va.*

Thin Ceramic Facing Material

CV Durathin, a new ceramic facing material only $\frac{3}{8}$ in. thick, is expected to reduce both initial costs and installation costs because of its thin-

ness and light weight and its large (up to 18 by 24 in.) unit sizes. It will also offer the durability, low maintenance and wide color range usually associated with ceramic veneer. *Federal Seaboard Terra Cotta Corp., 10 East 40th St., New York 16, N. Y.*

Cost-Cutting High Strength Bolt

A new design high strength bolt with a larger head and shorter thread length is said to make possible savings up to 40 per cent in bearing-type connections, as compared to standard high strength bolts. Its principal advantages are the larger bearing area under the head, which permits use of only one washer per bolt, and the shorter thread length which prevents the shear plane of the connection from passing through the threaded portion. Increasing the shear area of the bolt increases the allowable shear stresses so that one-third fewer bolts are needed in bearings type connections. *Russell, Burdall & Ward Bolt and Nut Co., 100 Midland Ave., Port Chester, N. Y.*



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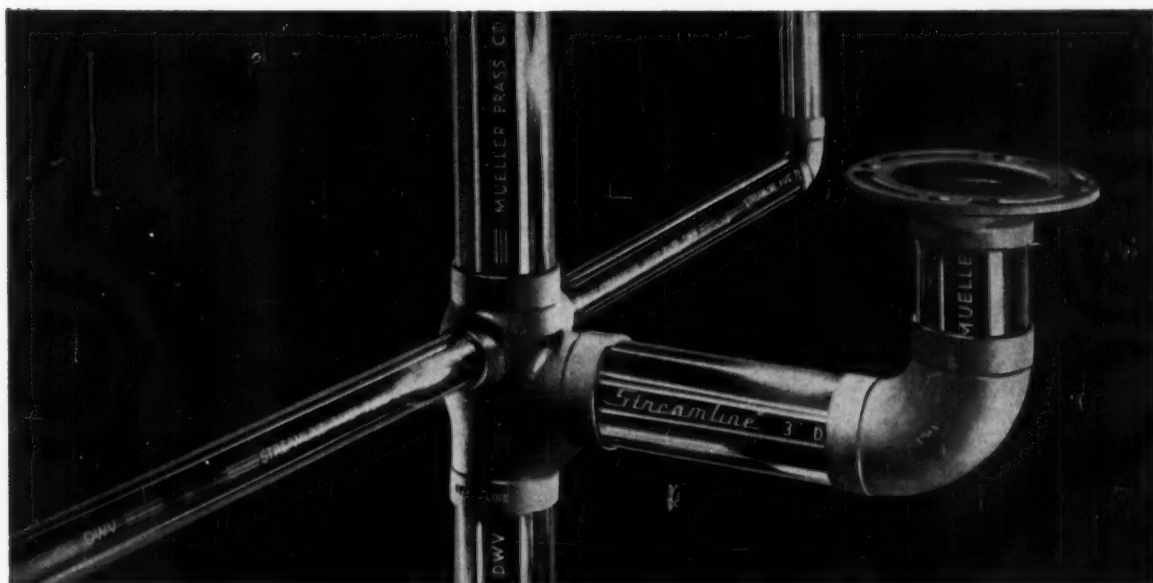
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A low-cost heavy-duty swimming pool features ribbed steel sidewalls that combine vertical strength with enough horizontal flexibility to withstand the stresses of freezing and thawing. The prefabricated, interlocking sidewall panels, which are assembled at the site and embedded in a reinforced concrete bottom, also eliminate the forms, reinforcing steel, and concrete that go into concrete pool walls. This reduces wall costs by as much as 80 per cent, bringing overall savings to around 50 per cent: the larger the pool, the greater the savings. Since the wall panels are flexible, *Coraloc* pools can be built in any shape at no extra cost. They will meet the strictest building codes, are easily maintained, and need not be drained in winter. *Coraloc Industries, Inc., 9460 Wilshire Blvd., Beverly Hills, Calif.*

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Office Literature

continued from page 232

Mortise Locks and Latches

Offers complete information on Sargent mortise locks, and illustrates trim, handle sets and miscellaneous locks. *Sargent & Co., New Haven 9, Conn.**

Waterloo Air Diffusion Equipment

(A.I.A. 30-J) Contains complete application and specification data on Waterloo line of return and supply registers, grilles, volume control dampers and door ventilators. Cata-

log 1-59, 58 pp. *Waterloo Register Co., Inc., P. O. Box 72, Waterloo, Iowa**

Industrial Insulating Materials

Presents properties and specifications for a complete line of heat and cold insulations. Thermal conductivities and tables of recommended thicknesses for each product, and application instructions for product types are also included. 24 pp. *Industrial Insulation Div., Baldwin-*

*Ehret-Hill, Inc., 500 Breunig Ave., Trenton 22, N. J.**

How to Lay Out a Parking Lot

(A.I.A. 38-M, 14-A-3) Includes suggested layouts for 45-, 60- and 90-degree angle parking with recommended stall widths and lengths, aisle widths, and entrance and exit dimensions. Various types of equipment for self-service parking—automatic gates, parking barriers, parking guides and sonic detectors—are also covered. 40 pp. *Western Industries, 2742 West 36th Pl., Chicago 32, Ill.*

Manual of Paper Food Service

Though aimed at managers of restaurants and institutional food facilities, this detailed manual also gives information of interest to architects planning such facilities: the cost of paper food service, planning kitchens for paper service, planning for storage and disposal of paper, and special situations encountered in various types of food service facilities. 60 pp. *Paper Cup and Container Institute, Inc., 250 Park Ave., New York 17, N. Y.*

Spang Underfloor Duct

Engineering manual gives dimensional drawings, a selection guide, installation suggestions and typical specifications on Spang standard and double-capacity duct for under-floor electrical distribution systems. Bulletin 515, 36 pp. *The National Supply Co., Two Gateway Center, Pittsburgh 22, Pa.**

Heifetz Design Gallery

Comprehensive catalog contains reference information, photos, drawings and specifications on Heifetz line of pendant fixtures, wall fixtures and chandeliers. Catalog A, 64 pp. *The Heifetz Co., Clinton, Conn.*

Dylite Panels: Modular Components

(A.I.A. 19-K) Details methods of using Dylite modular sandwich panels, and gives information on the sizes and types of panels available. Also shows study houses in various styles adaptable for construction with the panels. Bulletin C-10-291, 34 pp. *Koppers Co., Inc., Dylite Panel Plant, Plastics Div., Box 57, Harper Station, Detroit 13, Mich.**

*Additional product information in Sweet's Architectural File
more literature on page 292



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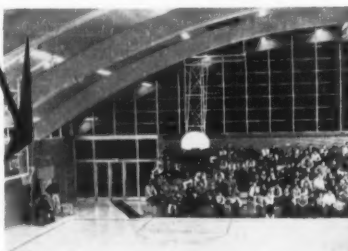


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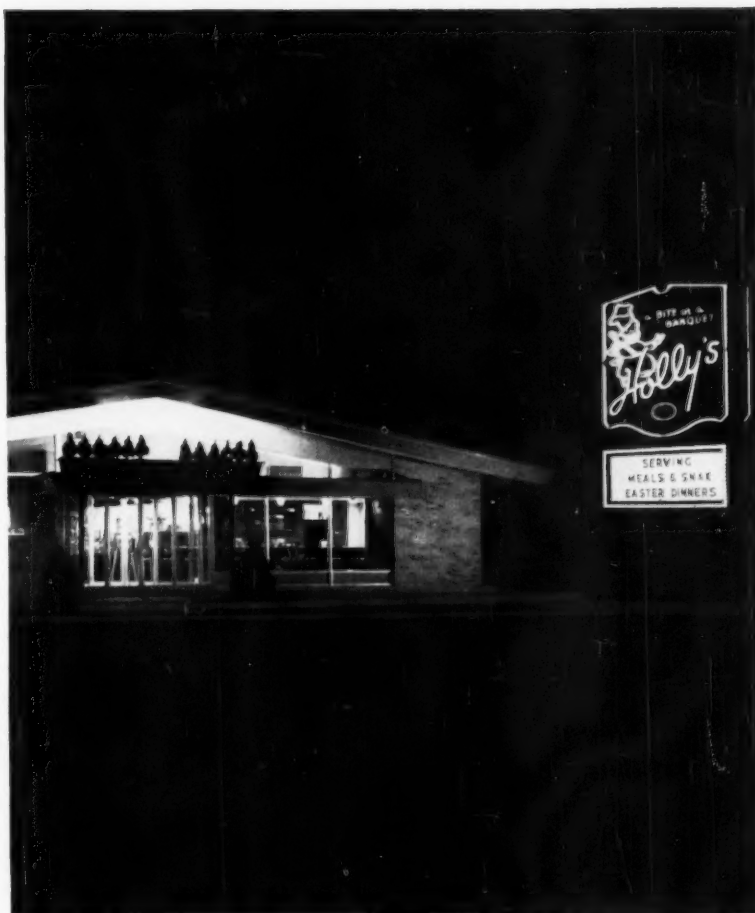
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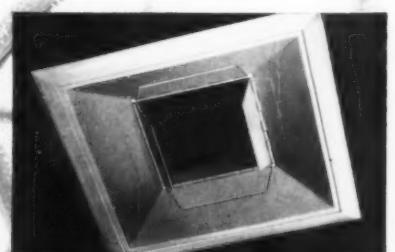
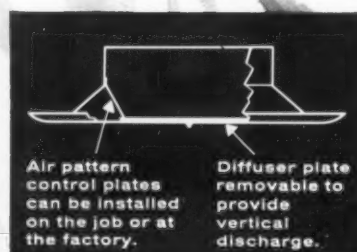
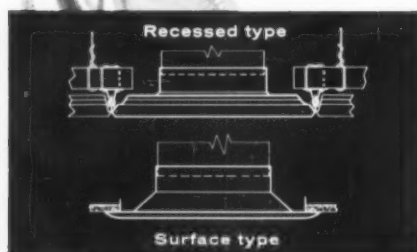
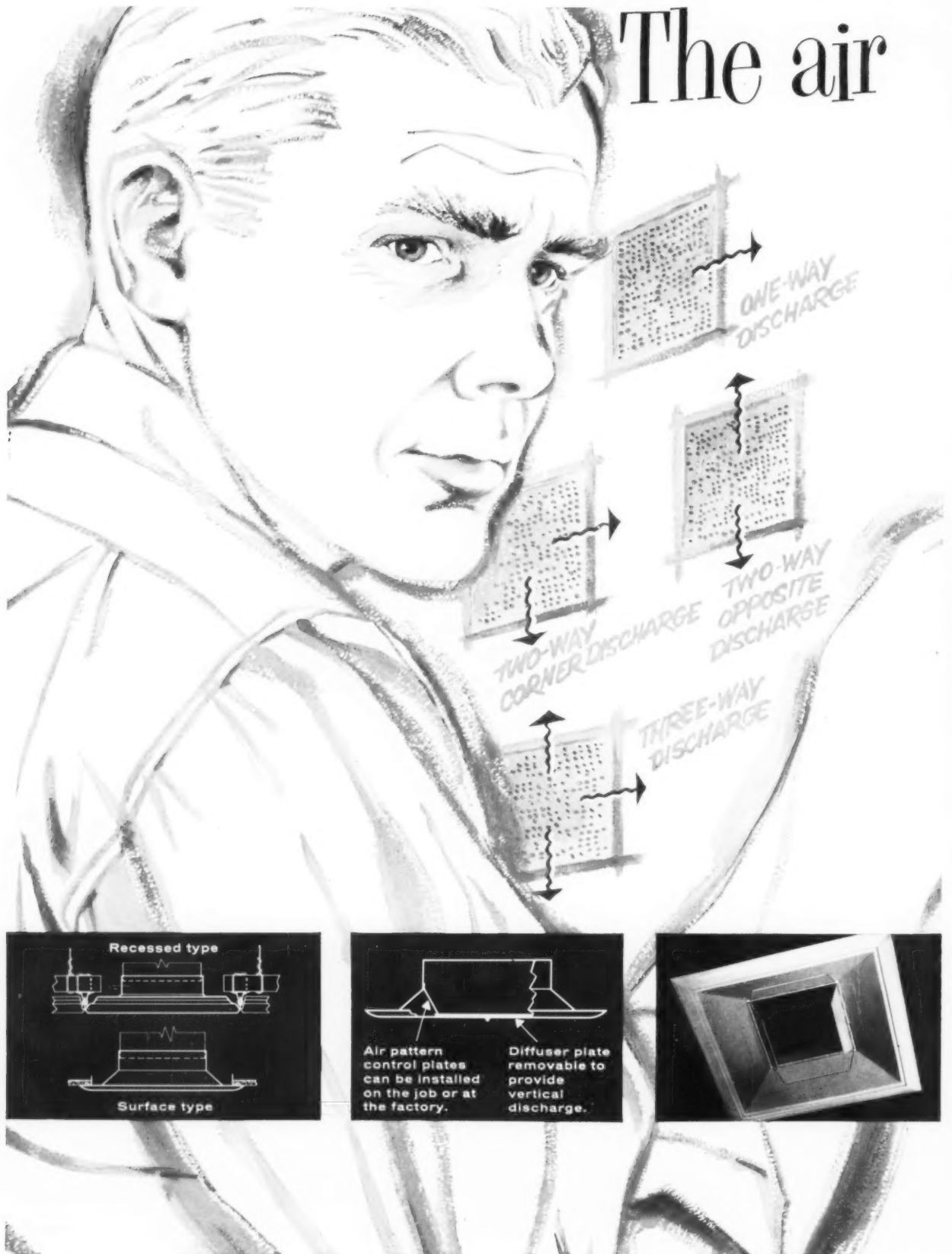


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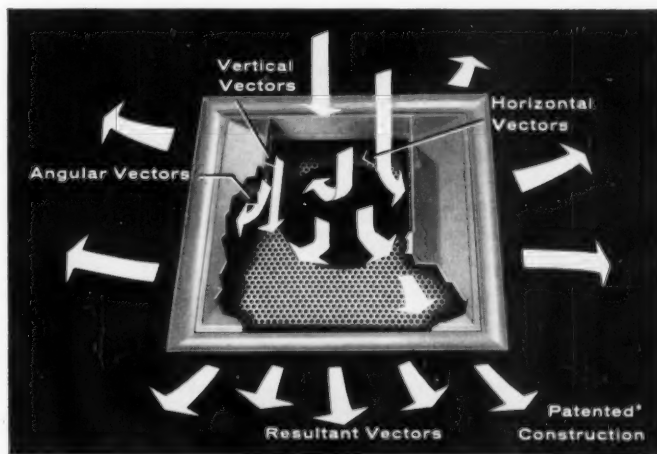


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Bulletin Boards . . . Chalk Boards

Give selection data and specifications on *Bancork* bulletin boards, plus similar information on *Banrite* chalk boards. 8 pp. *Bangor Cork Co., Pen Argyl, Pa.*

RLM Standard Specifications

... for *Industrial Lighting Equipment* includes three new specifications for 1500ma semi-direct units; upward revisions of many existing specifications, new specs for aluminum reflectors, and added provisions for inspecting and testing. 52 pp. *RLM Standards Institute, Inc., 326 Madison St., Chicago 6, Ill.*

Insul-Fil Technical Bulletin

(A.I.A. 37-D-2) Features engineer-

ing drawings, heat loss graphs, installation and thickness specifications, and similar technical data on *Insul-Fil* granular insulation for underground steam lines and heating systems. *Insul-Fil Co., Inc., 250 Pettit Ave., Bellmore, L. I., N. Y.*

High Temperature Water Systems

Describes full line of International-LaMont generators, and gives such engineering data as flow rate and heat content tables plus information on choice of system pressurization and pump arrangement. Bulletin 1600, 16 pp. *The International Boiler Works Co., 109 Maple St., East Stroudsburg, Pa.*

Pneumatic Tube Systems

Describes components and operation of *Transitubes* automatic pneumatic tube systems for hospitals. 4 pp. *The Grover Co., 25525 W. Eight Mile Rd., Detroit 40, Mich.*

Water-Repellent Masonry Insulation

(A.I.A. 37-C-2) Two new booklets, one on cavity walls and one on block walls, describe the advantages, applications and properties of *Zonolite* water-repellent masonry fill insulation. Both 4 pp. *Zonolite Co., 135 S. LaSalle St., Chicago 3, Ill.**

Insulated Curtain Wall System

(A.I.A. 17-A) Describes, with specifications and details, *Thermo-Sash* insulated setting frame for glass or panels, as well as single and double hung windows. 12 pp. *Kesko Products, Bristol, Ind.*

Water Cooling Coil Catalog

Introduces new direct selection method for all types of water cooling coils; describes the coils and their applications; and gives detailed selection data including psychrometric charts and curves. Catalog 406, 60 pp. *McQuay, Inc., 1600 Broadway St. N. E., Minneapolis 13, Minn.*

Continental Easy Estimator

Gives complete selection information, detailed specifications, and prices on Continental line of heavy duty electrical transmission and distribution equipment for commercial, industrial, residential and governmental installations. 300 pp. *Continental Electric Equipment Co., Dept. CAT, 205 W. Fourth St., Cincinnati, Ohio*

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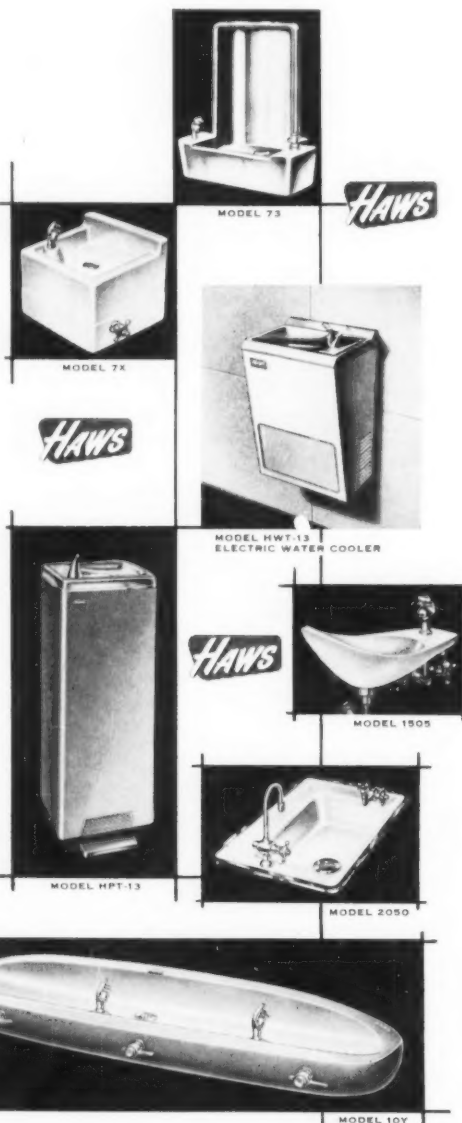
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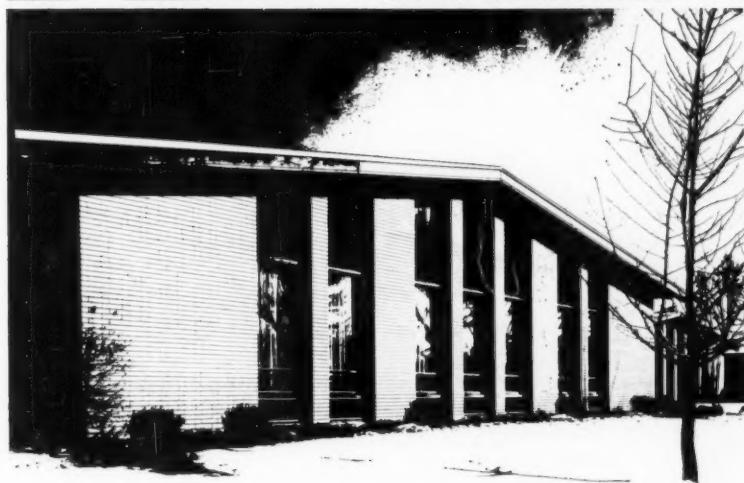
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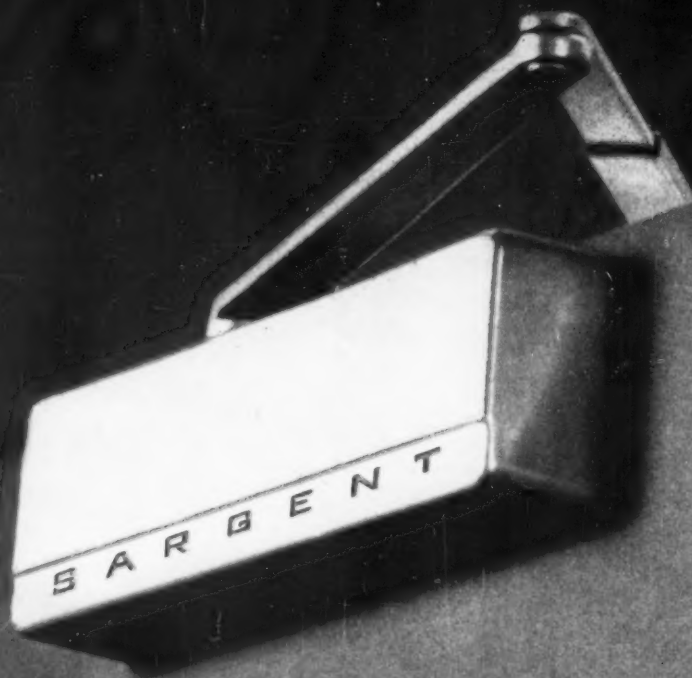
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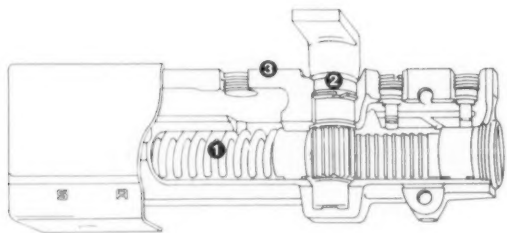


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1. Solomon R. Guggenheim Memorial Museum, New York City. Frank Lloyd Wright, Archt. Photo: © Ezra Stoller
2. U. S. Air Force Academy, Colorado Springs, Colo. Skidmore, Owings & Merrill, Archts. Photo: H. LaPlant

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1. Art School, Society of Arts & Crafts, Detroit, Mich. Minoru Yamasaki & Assocs., Archts. Photo: Baltazar Korab
2. United States Pavilion, Brussels World's Fair. Edward D. Stone, Archt. Photo: Raymond Badjou
3. Metropolitan Museum of Art, New York City. Photo: Charles Payne
4. Lillian Schmidt Elementary School, Columbus, Ind., Harry Weese & Assocs., Archts. Photo: Bill Engdahl, Hedrich-Blessing

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1. Slosberg Music Center, Brandeis University, Waltham, Mass. Harrison & Abramovitz, Archts. Photo: © Ezra Stoller
2. Morris Store, San Francisco, Calif. Frank Lloyd Wright, Archt. Photo: Maynard L. Parker
3. Harwyn Shoe Store, Roosevelt Field Shopping Center, Hempstead, N. Y., Ketchum, Giná & Sharp, Archts. Photo: Alexandre Georges
4. Dexter Chevrolet, Inc., Detroit, Mich., King & Lewis, Archts. Photo: Baltazar Korab

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1. McManus, John & Adams, Inc., New York City. Designs for Business, Inc., Designers. Photo: Ben Schnall
2. Ticket Offices, Pennsylvania Station, New York City. Lester C. Tichy, Archt. Lewis Smith, Lighting Designer.
3. Mills High School, San Bruno, Calif. John Lyon Reid & Partners, Archts. Photos: Roger Sturtevant

e.

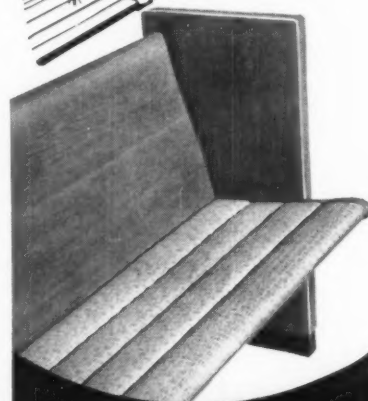
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1. Lambert Terminal, St. Louis, Mo. Hellmuth, Yamasaki & Leinweber, Archts. Henry
- (continued on page 300)

when Architects
and Church
Building Committees
look and compare



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pew
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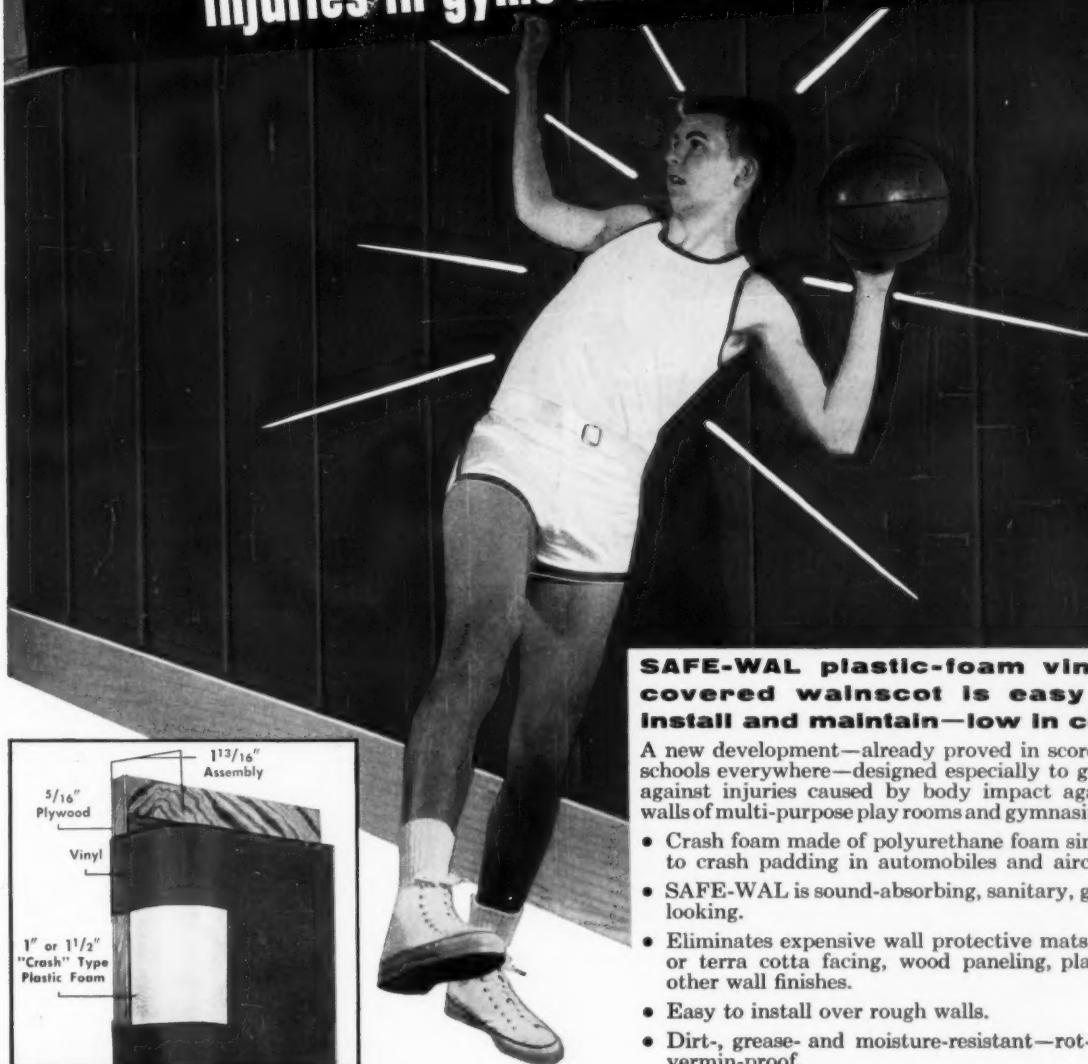
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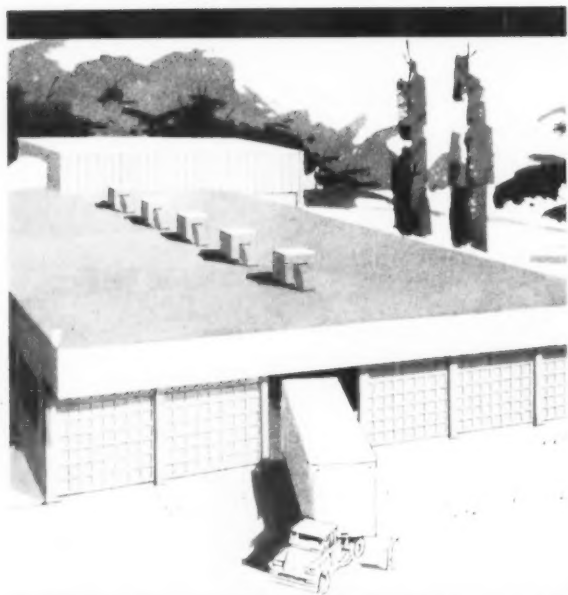
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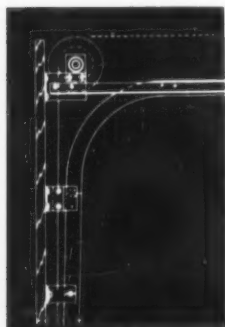




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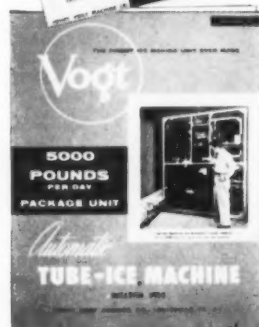
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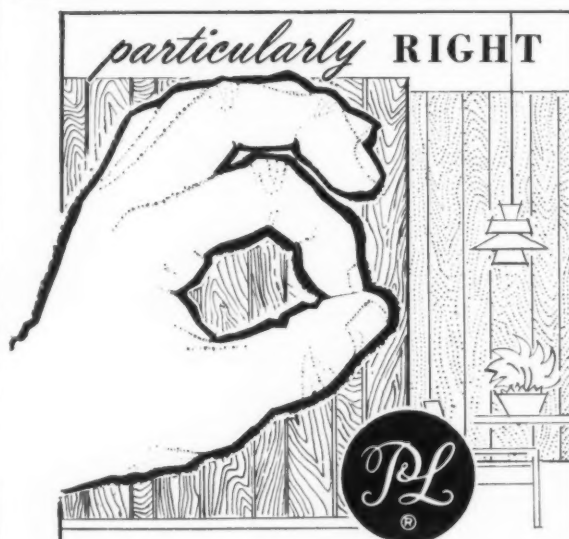
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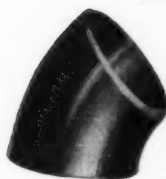


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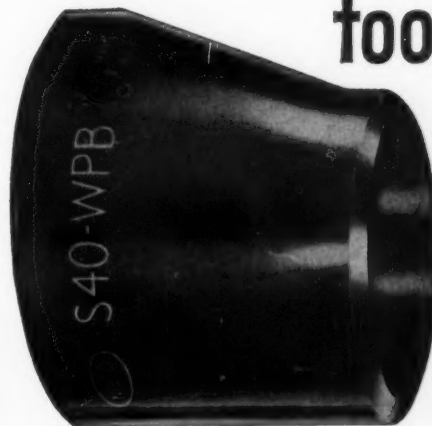
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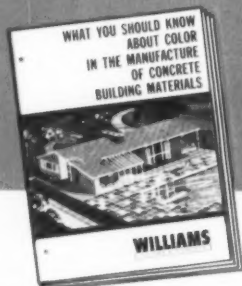


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LIGHTING CREDITS

(continued from page 296)

- J. Poehling, Lighting Designer. Photo: Bill Hedrich, Hedrich-Blessing
2. Wayne Memorial Community Auditorium, Wayne, Mich. Eberle M. Smith & Assocs., Archts. & Engrs. Tobias J. Gersbach, Design Assoc. Photo: Baltazar Korab
3. Parke-Davis Warehouse, Menlo Park, Calif. Minoru Yamasaki & Assocs., Archts. Photo: Roger Sturtevant
4. International Business Machines Pavilion, Brussels World's Fair. Eliot Noyes, Archt. Photo: Courtesy of IBM

pages 226-7

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(continued)

5. Reynolds Metals Bldg., Detroit, Mich. Minoru Yamasaki & Assocs., Archts. Photo: Baltazar Korab
6. Lambert Terminal, St. Louis, Mo. Hellmuth, Yamasaki, Leinweber & Assocs., Archts. Photo: Hedrich-Blessing

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1. St. Paul's Lutheran Church, Sarasota, Fla. Victor Lundy, Archt. Photo: George Cserna
2. Tivoli Gardens, Copenhagen, Denmark. Photo: Courtesy of Danish Information Office
3. Seagram Bldg., New York City. Mies van der Rohe and Philip Johnson, Archts. Richard Kelly, Lighting Designer. Photo: © Ezra Stoller
4. Church of St. Clement, Alexandria, Va. Joseph H. Saunders, Jr., Archt.

pages 228-9

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1. Deering Milliken Co. Bldg., New York City. Carson & Lundin, Archts. Photo: Joseph W. Molitor
2. McGregor Memorial Conference Center, Wayne State University, Detroit, Mich. Yamasaki, Leinweber & Assocs., Archts. Photo: Baltazar Korab
3. Chartres Cathedral. Photo: William Lam
4. Beth Sholem Synagogue, Elkins Park, Pa. Frank Lloyd Wright, Archt. Photo: P. E. Guerrero
5. Kresge Chapel, Massachusetts Institute of Technology, Cambridge, Mass. Eero Saarinen & Assocs., Archts. Anderson & Beckwith, Assoc. Archts. Photo: Ben Schnall
6. St. John's College, Annapolis, Md. Richard J. Neutra & Robert E. Alexander, Archts. Photo: Joseph W. Molitor
7. Bowlerama, Detroit, Mich. Hawthorne & Schmiedeke, Archts. Photo: Baltazar Korab
8. Forestry Laboratory, Yale University, New Haven, Conn. Paul Rudolph, Archt. Photo: Ronald C. Binks



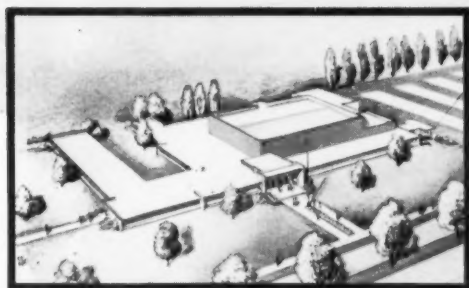
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AR-06

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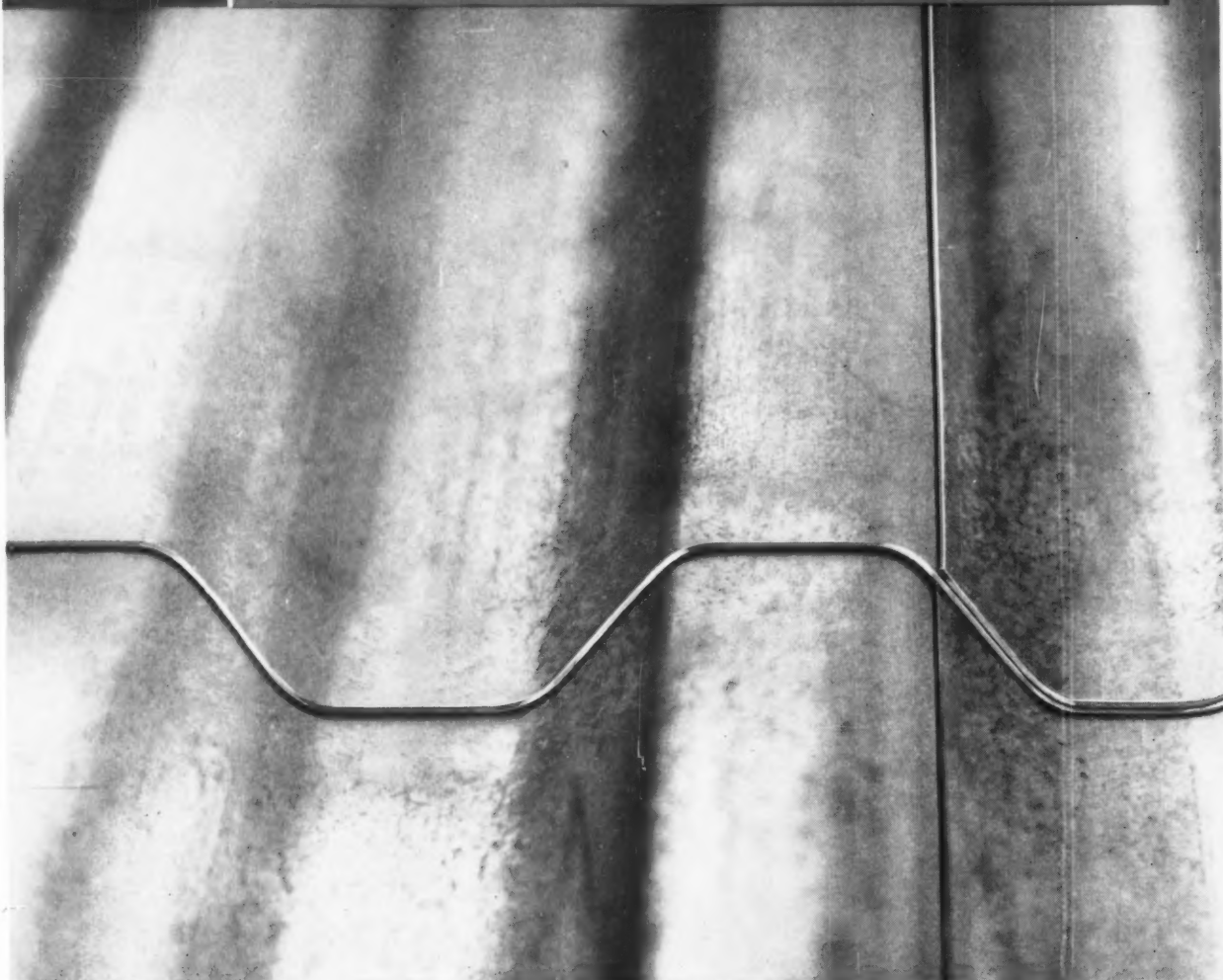
A DEPARTMENT OF THE NATIONAL COAL ASSOCIATION

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See our listing in Sweet's Files: A-30j/Bi; PE-4a/Bi; IC-18b/Bi



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Now! Here's a stronger, easier-to-use permanent steel base for concrete floors and roofs...and for *both* conventional and light-aggregate concrete. It's *all-new* Tensilform by Wheeling!

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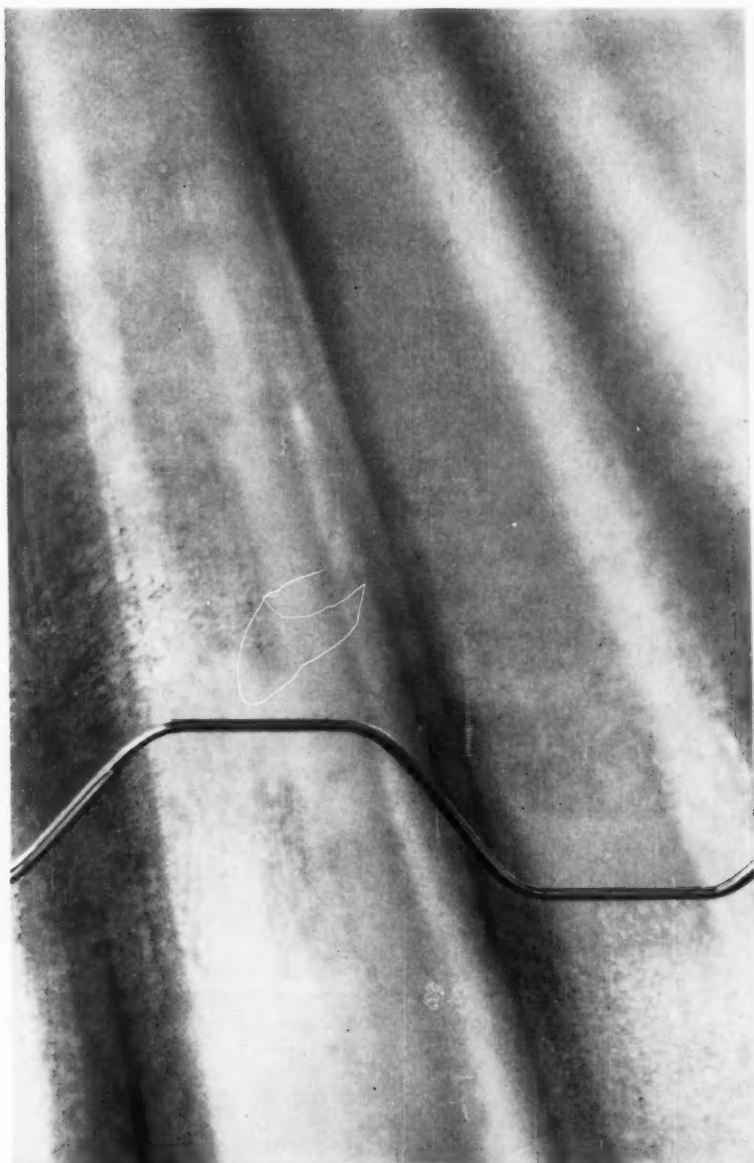
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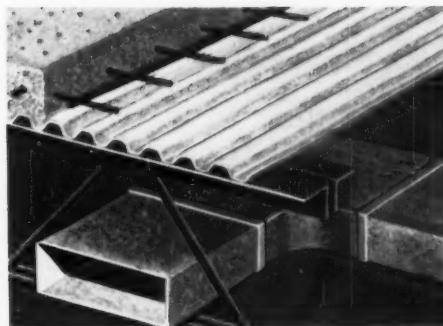
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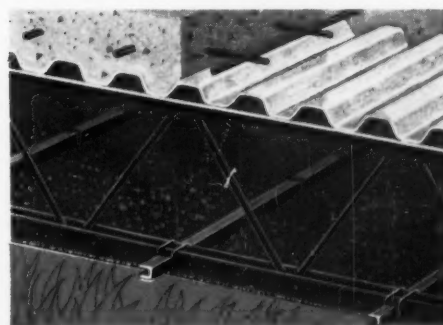


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On the Calendar

June

- 1- 4 Annual Assembly, Royal Architectural Institute of Canada —Fort Garry Hotel, Winnipeg
- 8-11 Annual Meeting, National Society of Professional Engineers—Statler Hotel, Boston
- 9-11 60th Annual Convention, New Jersey Society of Architects and New Jersey Chapter, American Institute of Architects — Berkeley-Carteret Hotel, Asbury Park, N. J.
- 12-24 Fourth Annual Seminar for Teachers of Architecture, jointly sponsored by the American Institute of Architects and the Association of Collegiate Schools of Architecture; theme, "Technology in Architecture" — Sagamore Lake, N. Y.
- 13-15 Annual Meeting, American Society of Heating, Refrigerating and Air-Conditioning Engineers—Royal York Hotel, Vancouver
- 13-15 Annual Meeting, American Association of Cost Engineers —Rice Hotel, Houston
- 15-18 British Architects' Conference for 1960—Manchester, England
- 19-22 Annual Convention, National Parking Association — San Francisco
- 19-25 National Convention (second of three in 1960), American Society of Civil Engineers—Reno
- 25-ff. First International Congress for Automatic Control; through July 5—Moscow
- 26-29 61st Annual Meeting, American Society of Landscape Architects—Waldorf Astoria Hotel, New York City
- 26-ff. Annual Meeting and Exhibit, American Society for Testing Materials; through July 1—Chalfonte-Haddon Hall, Atlantic City
- 27-29 13th Annual Conference on Aging, sponsored by the University of Michigan—Ann Arbor, Mich.

July

- 6- 8 Conference on civil engineer—
continued on page 308



ARCHITECT:

Frazier, Raftery, Orr &
Fairbank, Geneva, Ill.

CONSULTING ENGINEER:

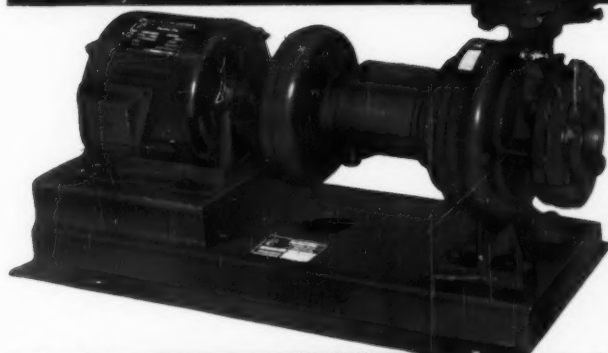
Wm. A. Gavelek, Elgin, Ill.

CONTRACTOR:

A. J. Ironsides Heating &
Ventilating, Elgin, Ill.

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Inland Supply Company,
Elgin, Ill.

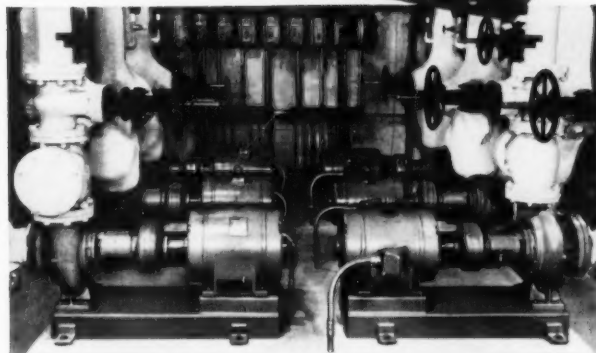


PUBLISHING HOUSE COOLED QUIETLY WITH B & G PUMPS

The Church of the Brethren at Elgin, Illinois, publishes numerous religious papers. In the office and factory of this organization, the 300 ton cooling load of the two buildings is handled with chilled water, circulated by four B&G Universal Pumps. Two additional Universals are used as condenser water pumps.

Universal Pump motors are specially constructed and selected for *extra quiet* operation. Long sleeve bearings are used in both motor and pump—another assurance of smooth vibrationless operation and long life. The oversized shaft is made of special alloy steel with an integral heat-treated thrust collar to absorb end-thrust. Water leakage is prevented by the diamond-hard "Remite" Mechanical Seal—a B&G development.

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One PD35 Booster is used to circulate hot water for heating and cold water for cooling in building connecting plant and office; one 2" Booster circulates boiler water through fuel oil preheater.



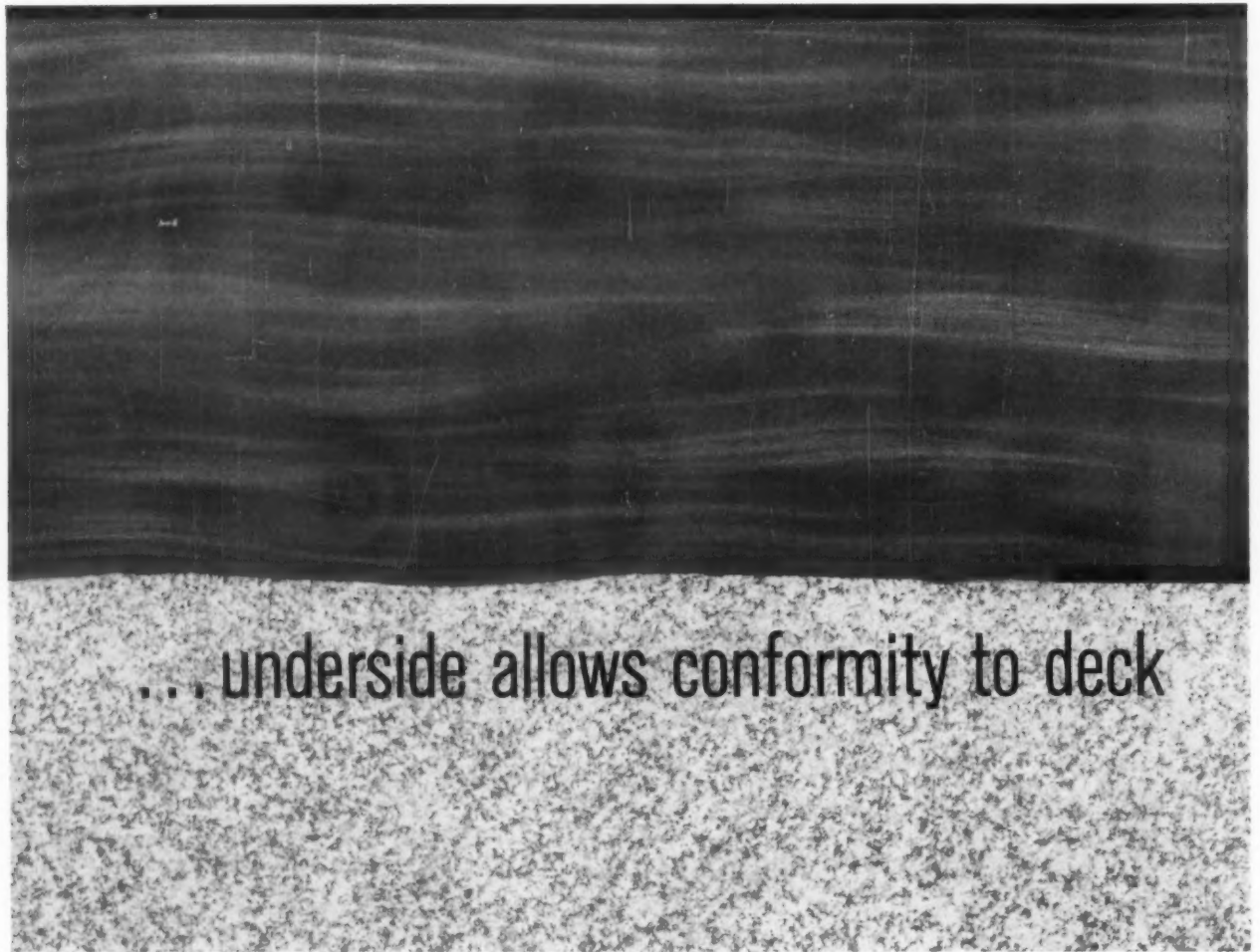
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... smooth, tough, impact-resistant topside



... underside allows conformity to deck

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Fiberglas Roof Insulation is now available in the new 3' x 4' and 4' x 4' sizes that cover more

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Recommended for above the deck: Perma Ply* Roofing Felt, the Fiberglas Built-Up Roofing

ROOF DECKS LIKE A GLOVE!

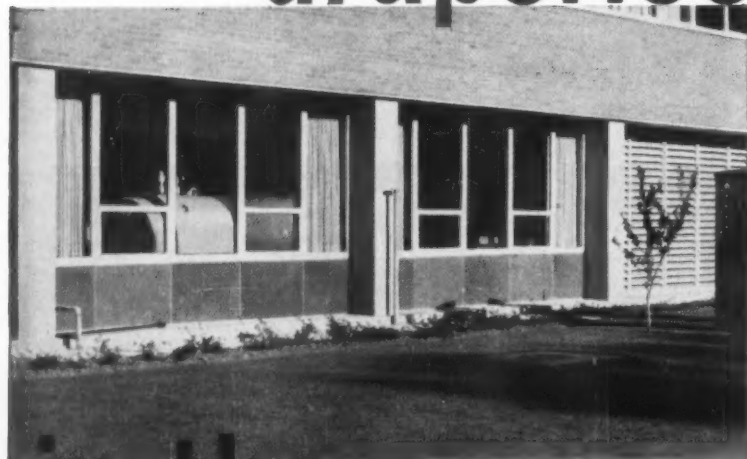


that provides a long-lasting roof. Monolithic (single-unit) construction forms a solid, weather-proof slab of asphalt reinforced with Fiberglas Perma Ply. Best specification for quality roofs from top to bottom: Fiberglas Roof Insulation and Fiberglas Built-Up Roofing. For complete descriptive literature, write: Owens-Corning Fiberglas Corporation, Dept. 68-F, 717 Fifth Avenue, New York 22, New York.



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draperies



in the boiler room

Cleaver-Brooks packaged boilers help make the boiler room beautiful at Whirlpool

The place: Whirlpool Corporation's administrative center outside St. Joseph, Michigan.

The architects: Smith, Hinchman & Grylls, Detroit.

The installation: A matched pair of Cleaver-Brooks Model CB heating boilers installed by C. L. Mahoney Company, Kalamazoo.

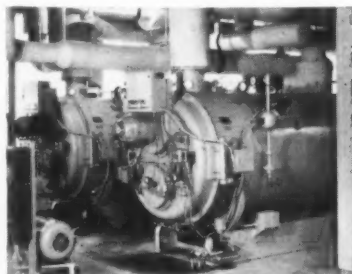
A boiler room with draperies on the picture window speaks for the cleanliness, the lasting beauty of Cleaver-Brooks' packaged boilers. And that's not all. Remarkable compactness means freedom from the design limitations of larger, bulkier units.

Save on construction, too — thanks to the design and low headroom requirements of a Cleaver-Brooks boiler. The boiler can be placed on grade without fear of high water table or bedrock problems.

All this plus long-range operating economies through Four Design Standards combined only in a Cleaver-Brooks boiler: 4-pass gas travel . . . 5 sq. ft. of heating sur-

face per boiler horsepower . . . forced draft . . . updraft construction.

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Matched pair of Cleaver-Brooks Model CB boilers as installed at Whirlpool Corp.

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The Record Reports

ing education curricula, jointly sponsored by Cooper Union, the American Society of Civil Engineers and the American Society for Engineering Education, under a grant from the National Science Foundation —Ann Arbor, Mich.

10-22 Atomic Shelter I; seminar for architects and engineers involved with planning and preliminary design aspects of buildings, shelters and facilities to resist nuclear weapons —College of Engineering and Architecture, Pennsylvania State University, University Park, Pa.

11-18 Second World Conference on Earthquake Engineering—Tokyo and Kyoto, Japan

18-19 School Architecture and the Newer Educational Media; the annual A.A. Cleveland School Building Conference —Washington State University, Pullman, Wash.

18-29 City and Regional Planning; 22nd annual special summer program—Massachusetts Institute of Technology, Cambridge 39, Mass.

24-ff. Atomic Shelter II; seminar for architects and engineers involved with analysis and design of structural and radiation shielding systems—College of Architecture and Engineering, Pennsylvania State University, University Park, Pa.

August

29-ff. Annual Convention, American Hospital Association—Civic Auditorium, San Francisco

Office Notes

Offices Opened

Architect Joseph Fuller, A.I.A., announces the opening of his office for the practice of architecture at 103 Park Ave., New York 17, N. Y.

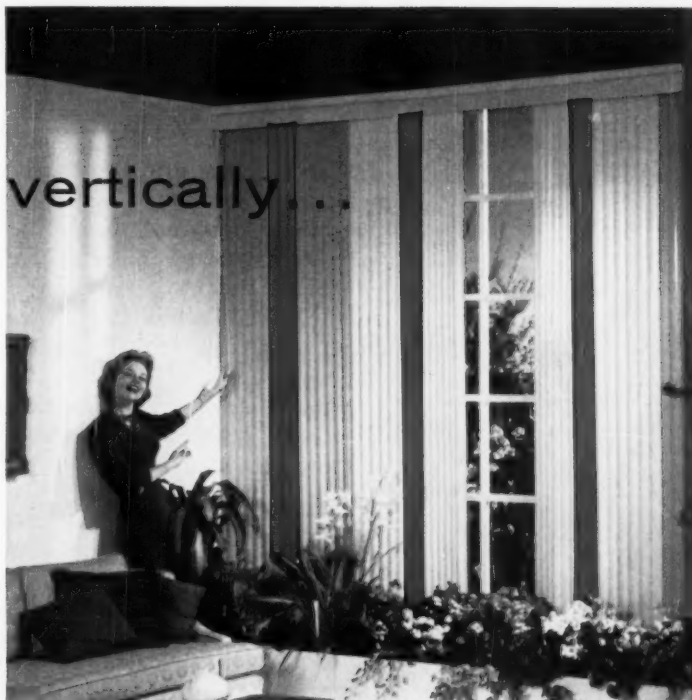
New Firms, Firm Changes

Elting, Deknatel & Associates, Inc., is the name of a new architectural firm established by Winston Elting, F.A.I.A., and William F. Dek-

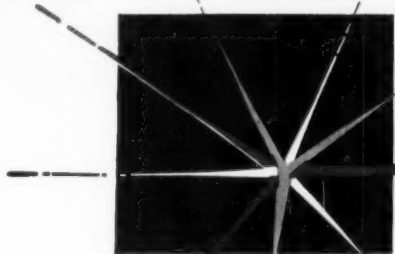
continued on page 312



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vertically...



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BEAUTY With stylish Eastern's Star horizontal and vertical Venetians—the "slatty" look is gone forever. Exclusive S-Shaped slats *interlock* to form a "one-piece" drapery effect. Big choice of colors offers unusual styling opportunities.

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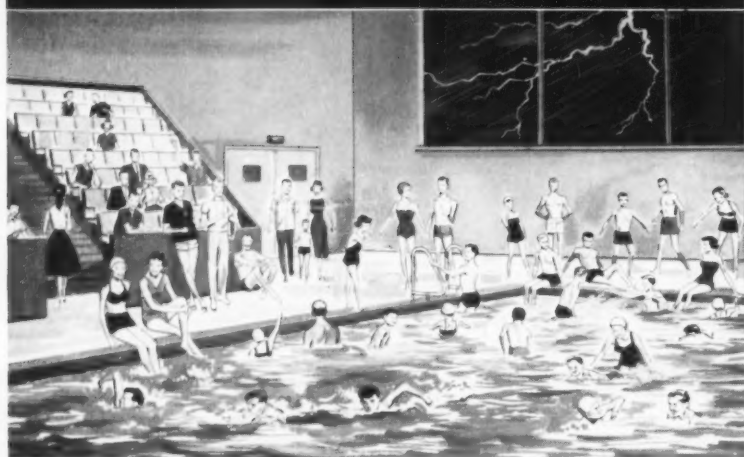
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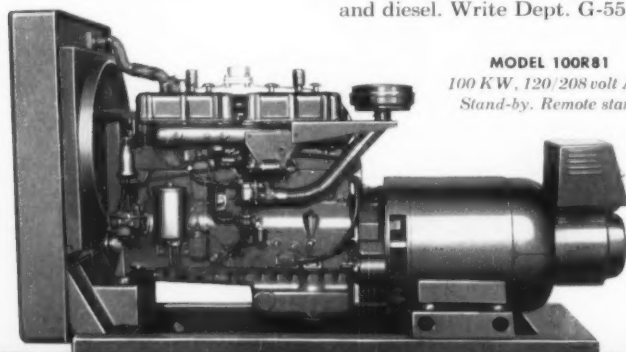
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The Record Reports

natel, A.I.A., with offices at 25 East Jackson Blvd., Chicago.

The Engineers Collaborative, consulting structural engineers with offices at 116 South Michigan Ave., Chicago (Kenneth C. Naslund, Partner), have announced the merger with their firm of Wiss and Associates. Jack Wiss, who becomes an executive member of TEC, will have offices in the firm's Structural Model Laboratory, 570 Northwest Highway, Des Plaines, Ill.

The architectural firm of Hoffman and Crumpton (R. L. Hoffman, F. T. Loeffler and G. M. Wolfe, Partners) announces a change in the firm name to Hoffman, Loeffler and Wolfe—C. A. Gaus and R. E. Girts Associated, with W. B. Chalfant, Associate Architect. Offices are at 700 Century Building, Pittsburgh 22, Pa.

George H. Miehl has been re-elected chairman and treasurer of Albert Kahn Associated Architects and Engineers, Inc., for the coming year. Other executive officers re-elected are: Sol King, president; Sheldon Marston, executive vice president; G. K. Scrymgeour, vice president and secretary; R. E. Linton, G. S. Whittaker, V. C. Wagner and Saul Saulson, vice presidents. Offices of the firm continue at 345 New Center Building, Detroit 2, Mich.

Newly elected associates in the firm of Kelly and Gruzen, architects-engineers with offices at 10 Columbus Circle, New York 19, N. Y., have been announced as follows: Robert B. Middlebrook, associate in charge of the design department; John H. St. Germain, associate in charge of institutional, hospital and prison work; and Arthur Klein, comptroller and business manager.

Charles Handley Marshall, A.I.A., and William Albert Lewis, A.I.A., announce the formation of a partnership for the general practice of architecture to be known as Marshall and Lewis, Architects. Offices are at 2125 Maryland Ave., Baltimore 18.

Robert H. Street, Architect, announces his partnership with Edward H. Street, Architect, in the new firm of Street and Street, Architects, with offices at 405 Commerce Union Annex, Nashville 3, Tenn.

Frederic P. Wiedersum Associates,
continued on page 316

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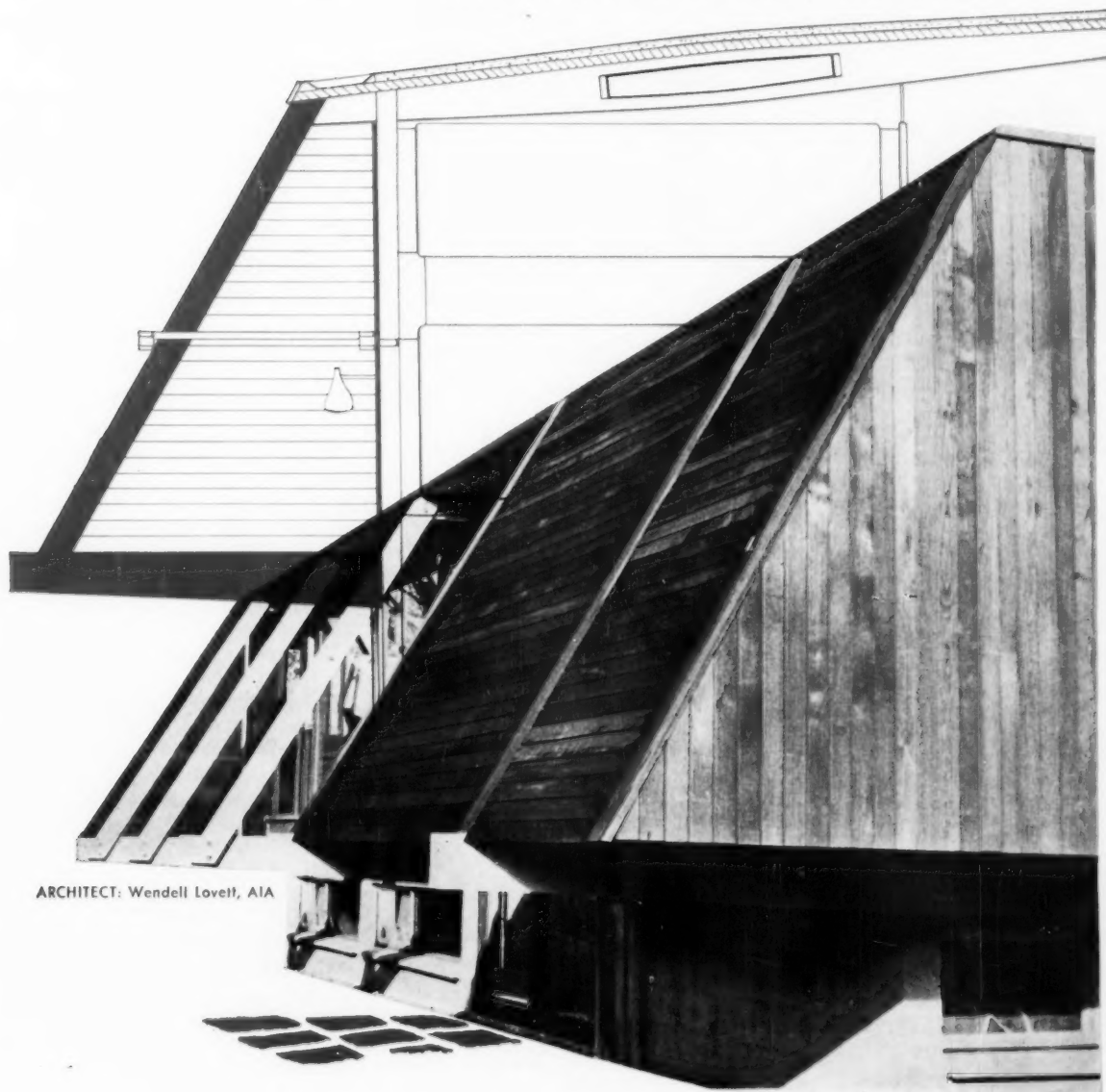
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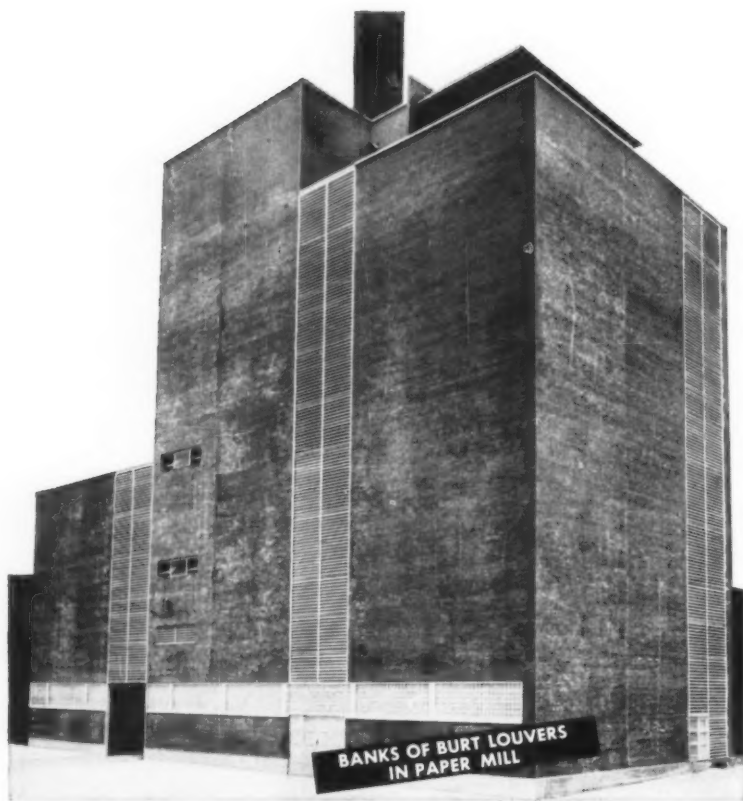
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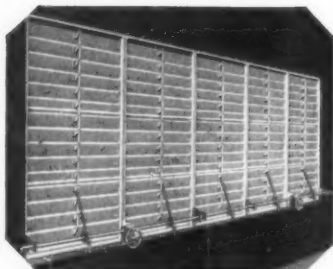
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Architects, has announced the addition to its staff of Reid Lighton, to serve in the firm's departments of college, commercial and banking work. The firm has its headquarters in Valley Stream, L. I., N. Y., with other offices in New York, Trenton, Washington, D. C., and Miami.

New Addresses

George Demers, Consulting Engineer, 845 St. Cyrille St. W., Quebec 6, Canada.

Friedman, Alschuler and Sincere, Architects and Engineers, 130 North Franklin St., Chicago 6, Ill.

Lyles, Bissett, Carlisle & Wolff, 1800 Gervais St., Columbia, S. C.

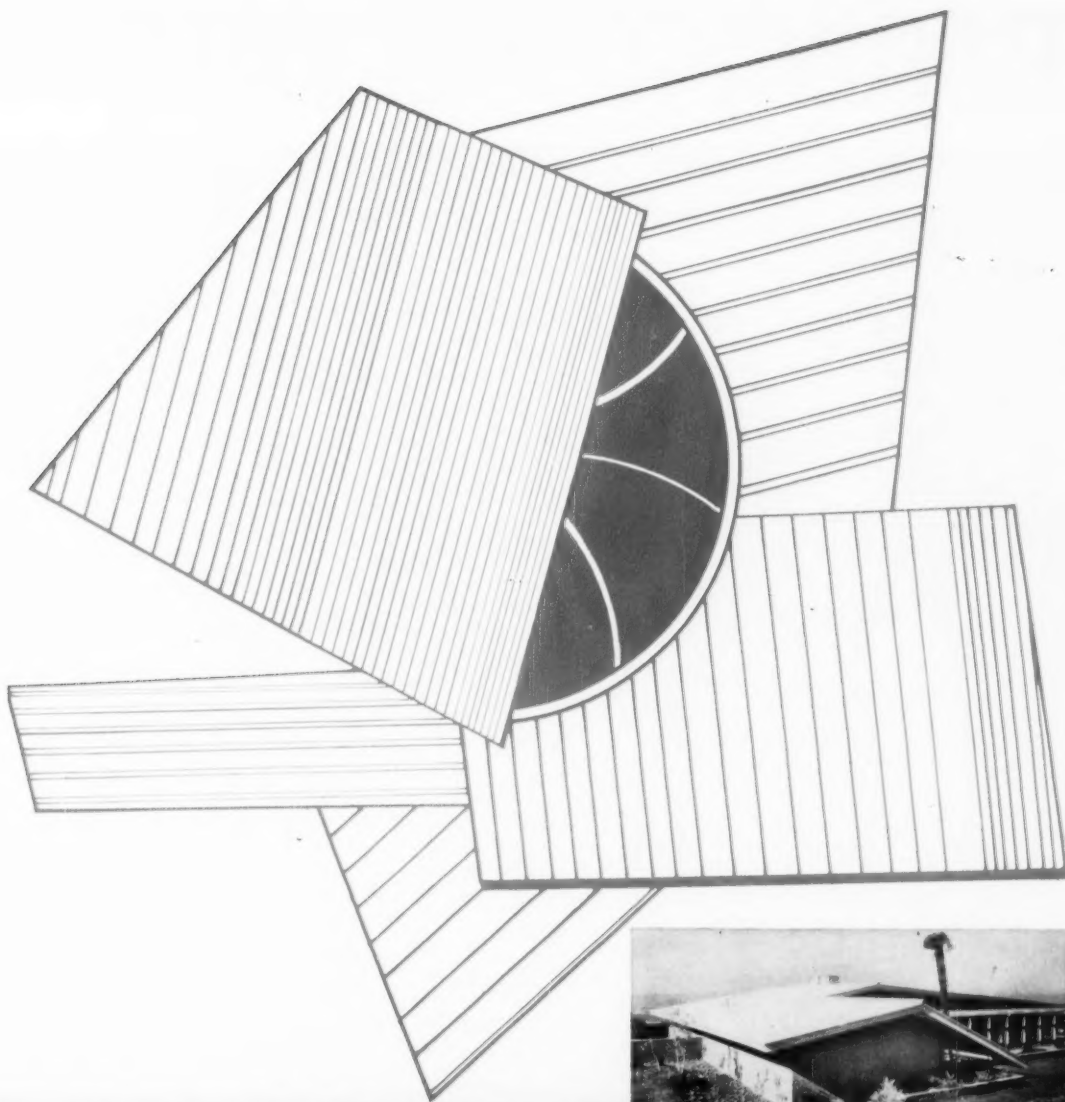
Bertram A. Weber, Architect, 234 South Wabash Ave., Chicago 4, Ill.

Engineers Ask Equal Status With Doctors and Lawyers

As the Labor Standards subcommittee of the House considered proposed amendments to the Fair Labor Standards act, it had before it a request from the National Society of Professional Engineers that registered professional engineers be granted the same status presently given licensed doctors and lawyers who are excepted from the minimum salary provisions for professional employees.

A spokesman for N.S.P.E. asked Congress through the subcommittee chairman, Rep. Phil M. Landrum (D-Ga.), to curb the Wage and Hour Administrator's "discriminatory actions toward professional engineering, and to extend to that worthy endeavor the same professional status and recognition given law and medicine."

There is, presently, a salary test providing that professional employees must earn at least \$95 per week. In making its plea to Congress, the N.S.P.E. said, "Since every state legislature and since the Congress of the United States has declared the professional status of licensed engineers, we respectfully suggest that there is no justification or warrant for the Administrator to ignore that fact in providing the special exception from the salary test for licensed and certified professionals."



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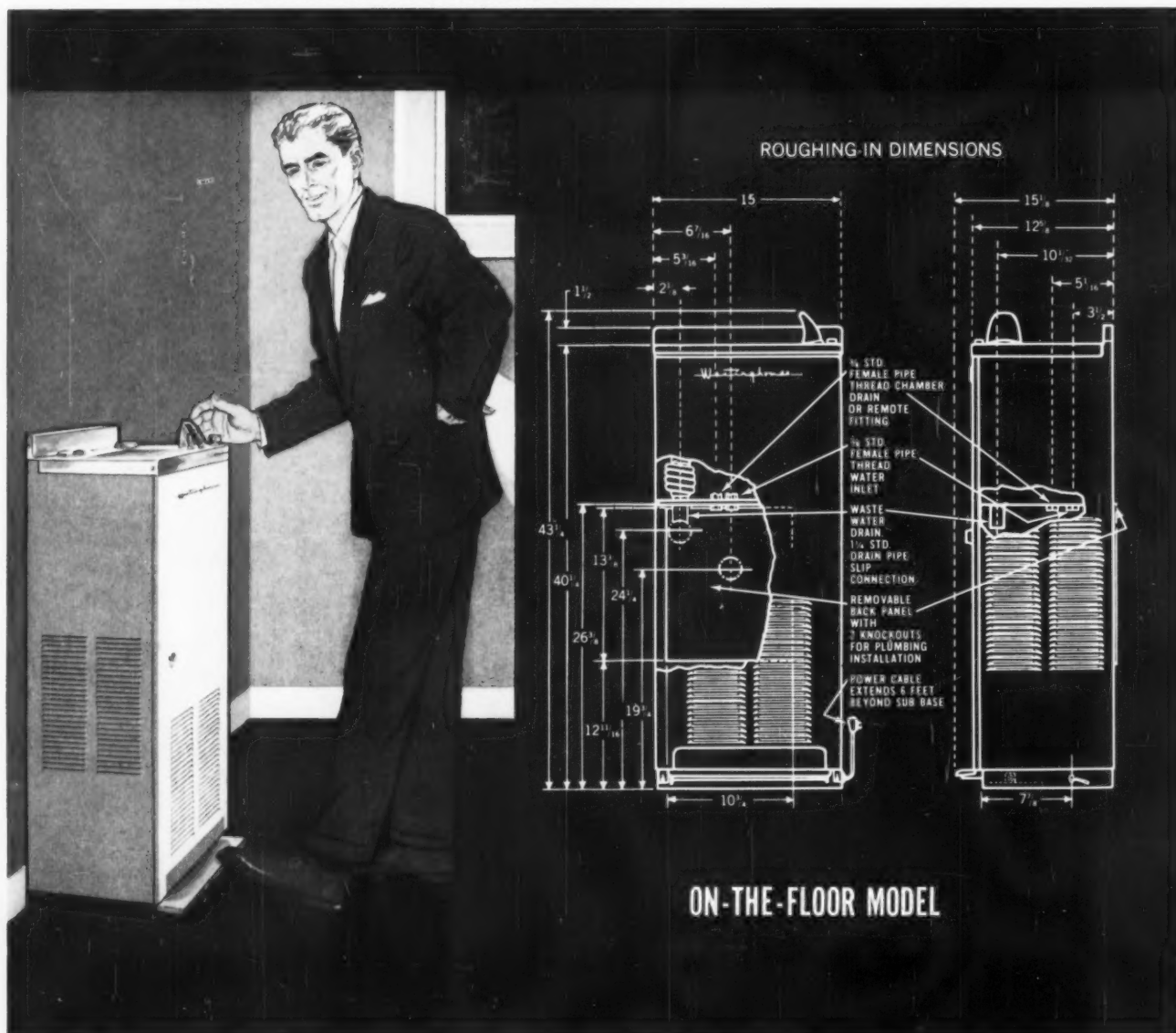


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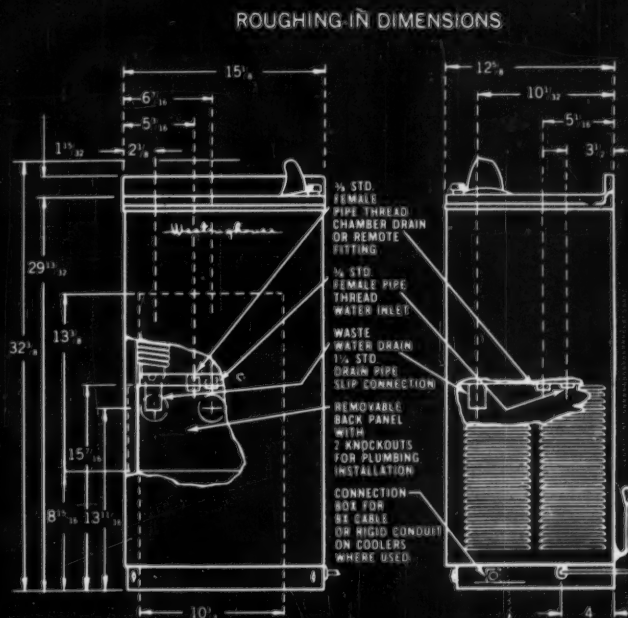
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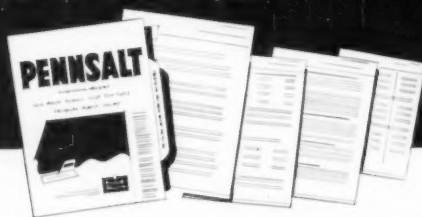
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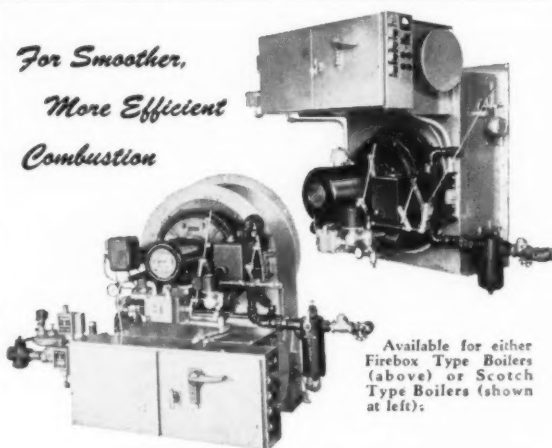
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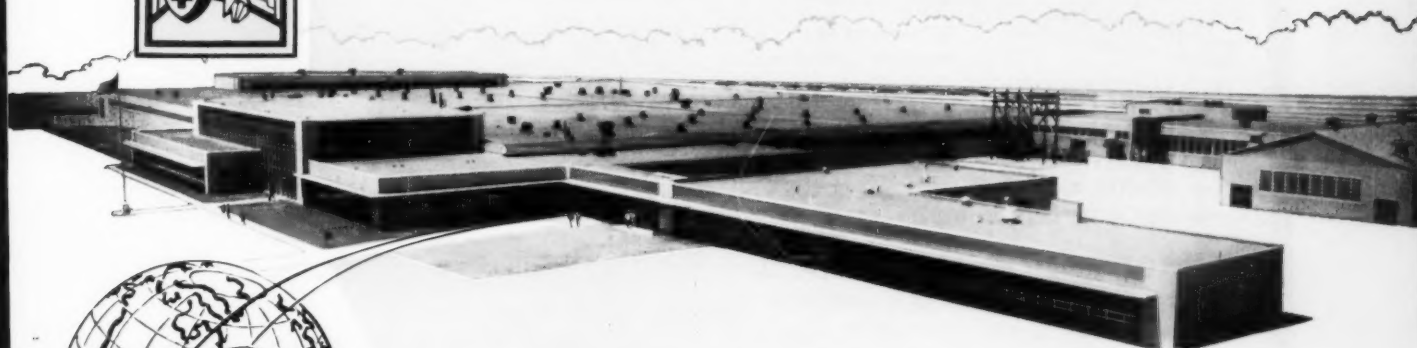
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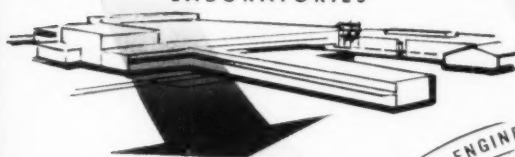


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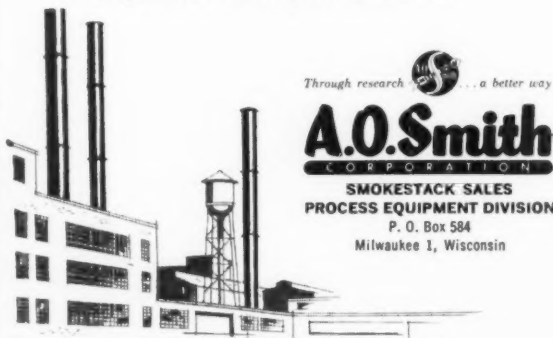


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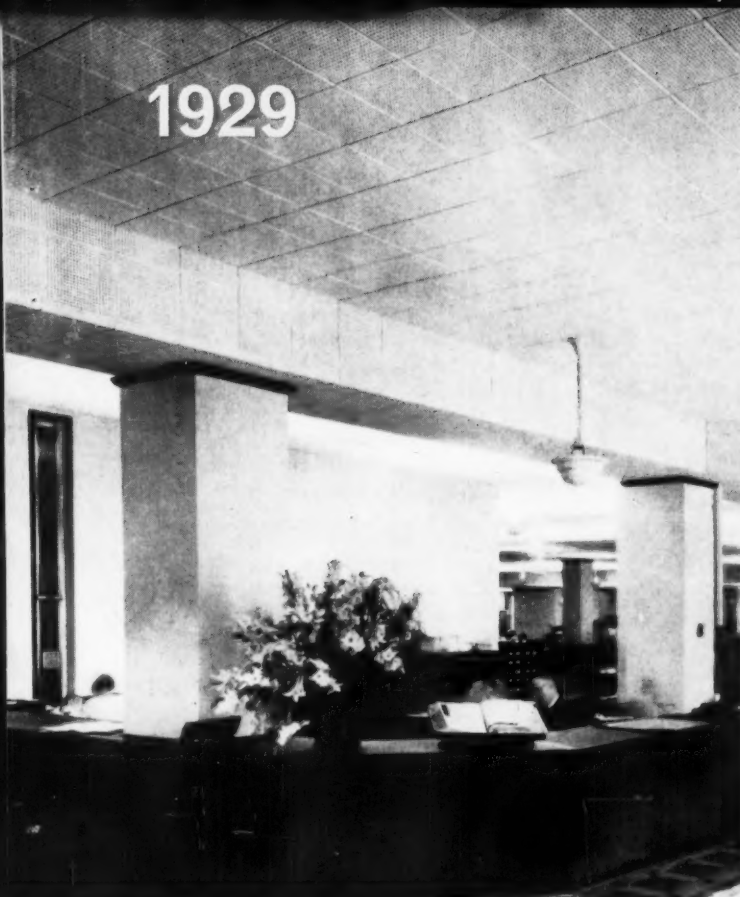
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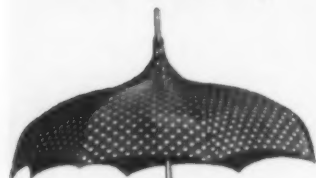
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Washington Topics

continued from page 70

from individuals, partnerships, trusts or corporations.

"As it was necessary to resort to regulatory agreement for control of mortgagors who were not corporations, it has been decided to resort to this as the control instrument for the corporate owners, too," FHA said.

For this reason, control through stock ownership will not be required.

Nor will FHA control the charges. It will be left to local, state, or municipal authorities to supervise care, health standards, fire laws, etc.

However, FHA requires that with the applications certification from authorities that they have adequate standards which are enforced or will be enforced.

The agency made a strong effort through a preliminary letter to determine the need for nursing homes. Because of a wide difference in replies as to the assistance in regard to need, FHA is not at this time stipulating the exact criteria state agencies must use in determining need. It did recommend, however, that each field office director arrange an early conference with state officials or local authorities to "explore this subject and arrive at mutual understandings with these officials."

Where mortgagors desire to borrow money for equipment or operating capital, the agency said it would recognize secured loans subject to its stipulated considerations.

Some Upgrading Seen

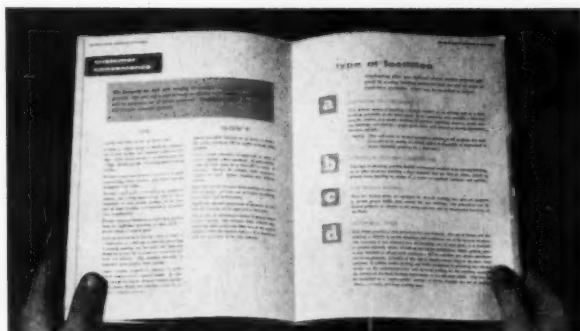
It was noted that the FHA Minimum Property Standards for Nursing Homes are somewhat higher than the average of state standards.

Commenting on this, the letter for field offices stated, "We believe this upgrading is in keeping with our overall objective of improving standards and is economically feasible in light of the more liberal financing which this program makes available. . . . On the other hand, these standards are not as high as those used by the Department of Health, Education, and Welfare under the Hill-Burton program. As it is a government-grant program they can realistically require higher standards.

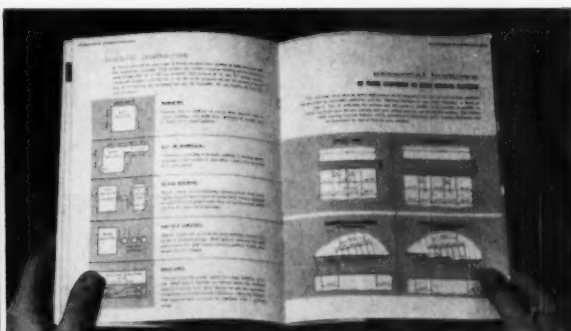
"We have tried to keep in mind the critical need for safe and sanitary
continued on page 328



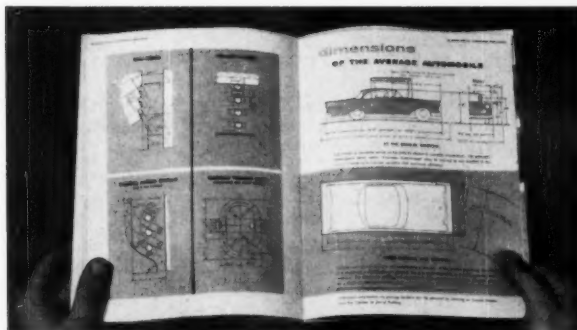
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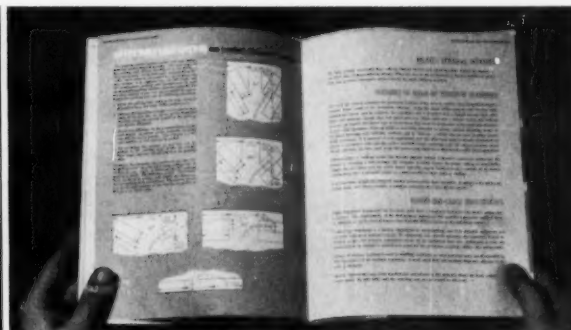
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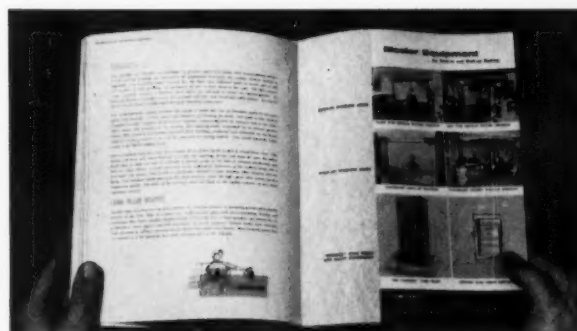
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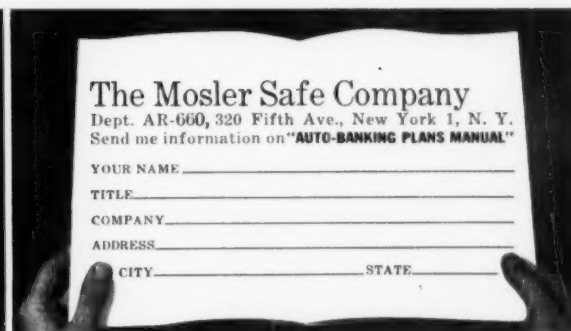
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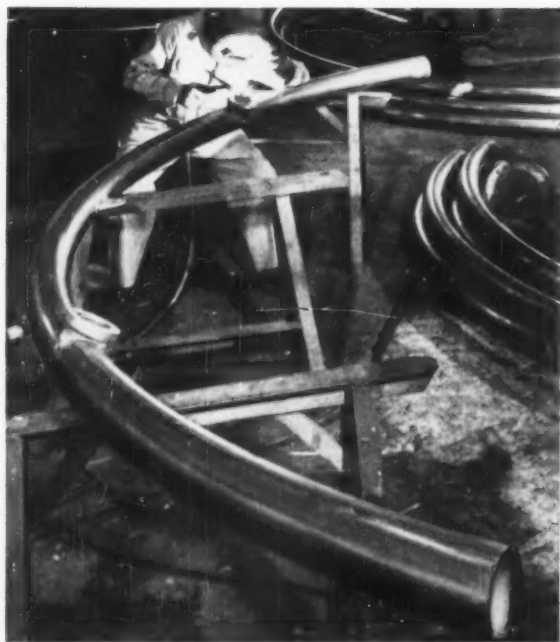
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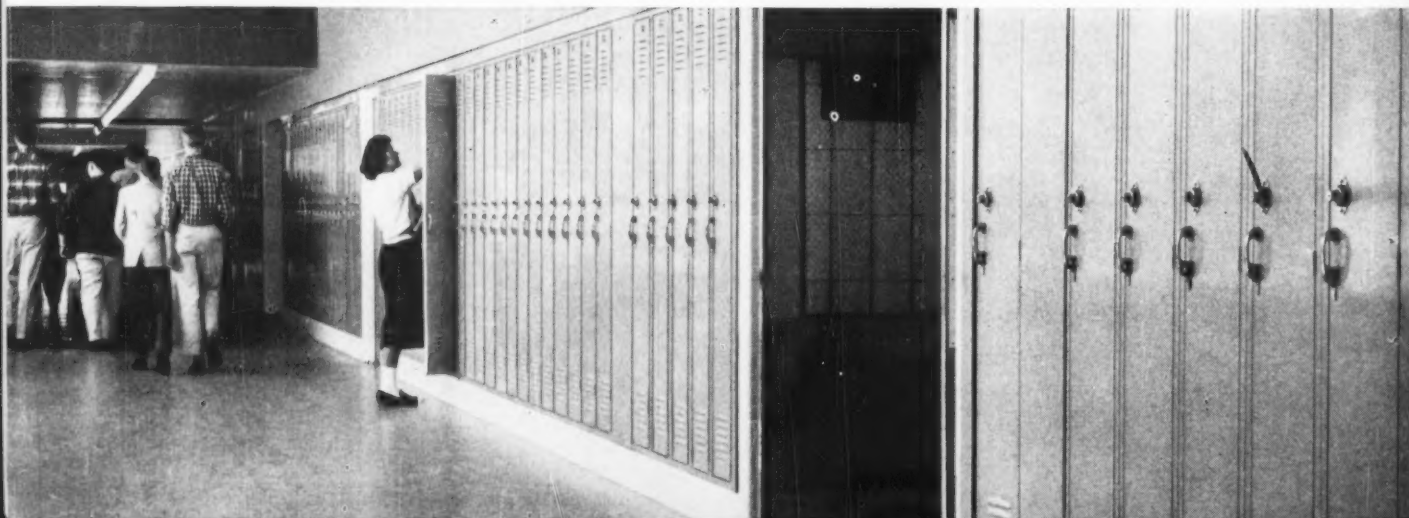
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EDIFICIO BANCO POPULAR, Monterrey, Mexico. Architects: Mario Pani, Salvador Ortega Flores, and Ramon Lamadrid R.
Designers: Armando Cardenas and Dr. Emilio Rosenblueth. General Contractor: Constructora Popular, S.A.

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nursing homes for the many people with small incomes. Naturally, where economic conditions justify it, offices (FHA) should encourage construction in excess of the minimum."

The agency hopes, it said, that the more adequate financing offered under this program will serve to improve the widely known conditions of fire hazard and overcrowding in substandard structures that now exist in some nursing homes.

House Ups VA Hospital Funds To \$75 Million for 1961

The \$900 million program of hospital modernization and rehabilitation proposed by the Veterans Administration for the next 12 years got a satisfactory nod from the House when it voted \$75 million for fiscal 1961 to launch the effort.

The Appropriations Committee had recommended only \$39.1 million

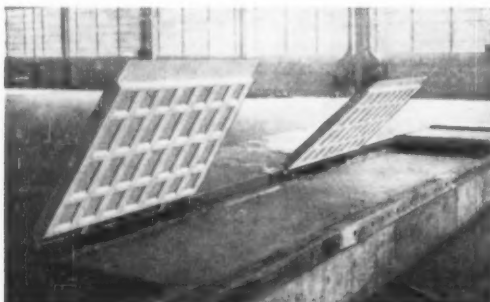
for VA hospital modernization and improvement, but the full House voted 218 to 155 to accept an amendment proposed by John P. Saylor (R-Pa.), increasing the sum of \$75 million.

The same measure left the House carrying in \$150 million for slum clearance and urban renewal, \$80 million for the Federal aid to airports program, and \$144.8 million for public buildings construction.

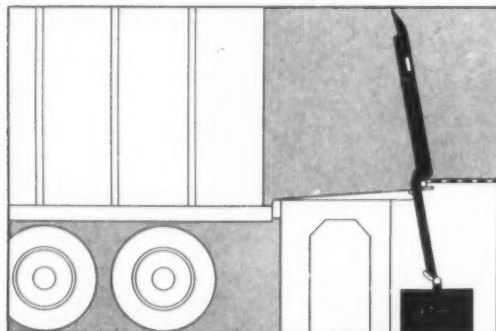
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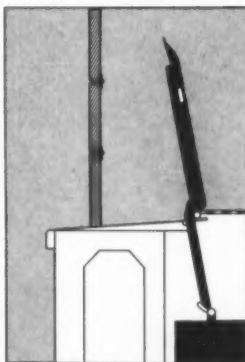
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ONLY THREE MOVING PARTS. Rite-Hite's simple counterbalanced design and rugged simplicity eliminate maintenance problems.

PLATFORM CAN BE SHIFTED FROM SIDE TO SIDE to permit lining up should trailer be spotted off-center.

Appropriations Unit Questions Private Design of U. S. Jobs

The Army Corps of Engineers and the Bureau of Reclamation of the Interior Department were in the position of defending before Congress their practice of contracting out certain architectural and engineering work. Testifying before a House Appropriations subcommittee, top authorities in the two agencies explained that design work on certain projects was passed to private firms when Corps or Bureau personnel were not able to do it with their own staff.

Speaking for the Bureau was Commissioner F. E. Dominy. Lt. Gen. E. C. Itschner, retiring this fall, was the witness for the Army Corps, of which he is chief. The testimony was heard on the fiscal 1961 public works appropriations bill.

For Economy . . .

"I think in general," said Commissioner Dominy at this year's hearing, "we employ outside firms and outside engineering skills only to the extent that is obviously in the interest of the government, and to carry out the program more economically, but we do use our own trained forces for the great majority of the engineering work which we perform."

The Department of Justice is known to be investigating at the present time the practice of so-called sundowners, those architects and engineers employed by the Federal government who take outside work to make extra money. Justice is looking into possible conflicts of interest, it was said. Mr. Dominy touched on this phase of the subject when he told the subcommittee members he was convinced none of his architects or engineers were doing the outside

continued on page 332

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PENNVERNON GRAYLITE takes the glare out of sunlight, yet lets plenty of refreshing light come through the windows of the new Connecticut State Highway Department Building, Weathersfield, Connecticut. All elevations are glazed with PENNVERNON GRAYLITE "56"—PPG's neutral gray, glare-reducing heavy sheet glass. Its neutral gray tint doesn't change the hue of outdoor colors, doesn't limit your choice of interior colors.

GRAYLITE has an unusually brilliant, unmarred fire finish—both sides. Because it is drawn under careful control, wave and distortion are negligible.

Talk over the distinct advantages of PENNVERNON GRAYLITE sheet glass with your PPG Architectural Representative, or see Sweet's 7a/Pi.

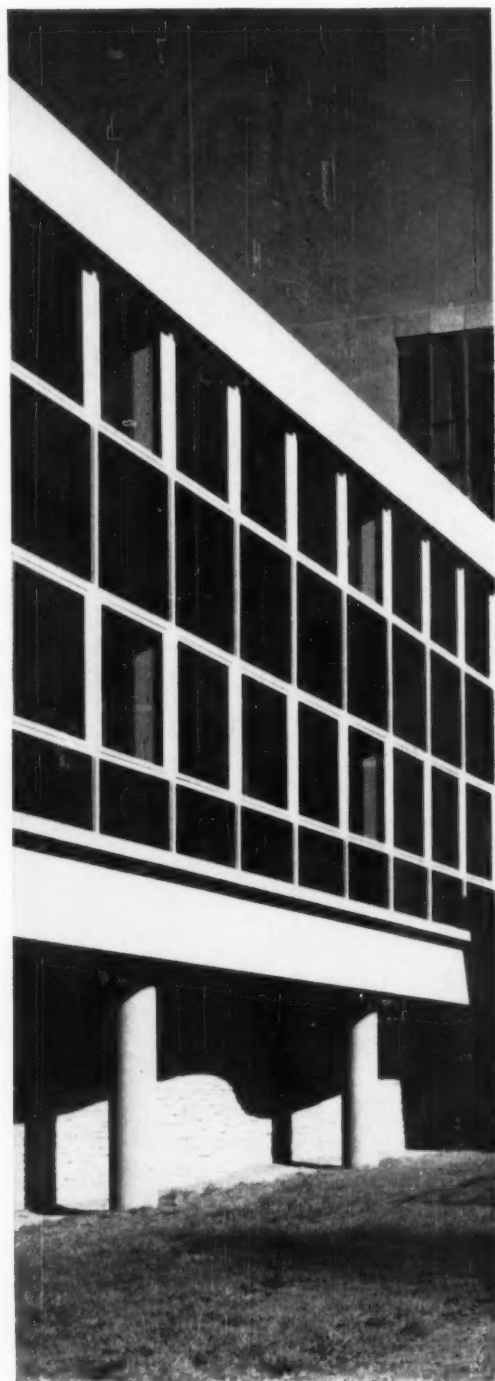


Architect: Henry F. Ludorf, A.I.A., Hartford, Conn.
Contractor: Felix Buzzi & Son, Inc., Torrington, Conn.
PPG Products installed: PENNVERNON GRAYLITE "56", Polished Plate Glass,
HERCULITE® heat-tempered Glass Doors and Sidelites,
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glass... a shade easier on the eyes
Highway office building



Washington Topics

work on government time or using government materials.

... And Special Skill

Lt. Gen. Itschner emphasized that the Corps contracts out its design work only when it is unusually complicated or specialized. In an effort to place as little work outside the ACE shop as possible, he explained, the Corps transfers certain work from overburdened districts to dis-

tricts with lighter planning loads. He added that lower pay scales in the government meant loss of architectural and engineering personnel and forced the Corps to contract out some of its design work which it otherwise would handle.

"We are not able to retain many of our better designers and engineers and architects because we cannot pay them as much as they are offered in architect-engineer firms," he testified. This becomes an even greater

problem for the Corps in period of high construction activity.

He protested a suggestion that further restrictions be placed on the hiring of non-Federal architects and engineers in the vast public works program. Additional restrictions, he said, would make it increasingly difficult for ACE to accomplish its program.

Outside Design Almost Double

The General denied that the pressure of deadlines was a factor in contracting out design work. Outside architect-engineer contracts in the Corps' program amounted to 7.4 per cent of all work in 1954. This climbed to 16.2 in 1957, dropped back to 12.3 per cent in 1958, and now has risen to 13 per cent due to the new starts in the civil works program.

Lt. Gen. Itschner expressed confidence that this problem would now "take care of itself."

The Corps spokesman again advanced the recommendation that Congress provide all the money for a single construction project at one time rather than through annual appropriations. Committee members resisted this, however, noting such a course would not cure the problem of constant and more expensive design changes.

On his side of the argument, General Itschner said appropriating the full amount for each job would mean earlier completion of that project and lower its cost through assurance to the contractor that he could move through the job to completion without uncertainties of additional financing. He added that under the present system bidders on the first contract are never sure of subsequent contracts on the same project. This moves them to include in the initial contract bid all the cost of mobilizing and demobilizing their equipment and personnel.

Committee Chairman Joe Cannon (Mo.), and other members wondered at this point if Congress would not still be plagued with requests for additional funds even if a single lump-sum were appropriated per project.

He asked, "Would we . . . be able to close the contract with the contractor and regardless of what happened and regardless of future contingencies, pay him that amount and

continued on page 336

more . . .



Ellison doors



SUPREME COURT BUILDING

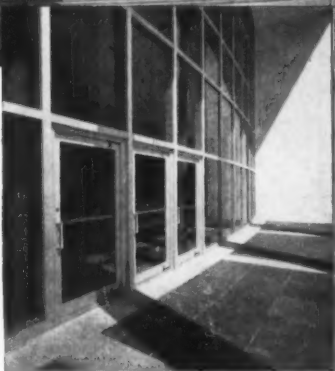
New Orleans, Louisiana

Architect:

August Perez & Associates
Goldstein, Parham & Labouisse
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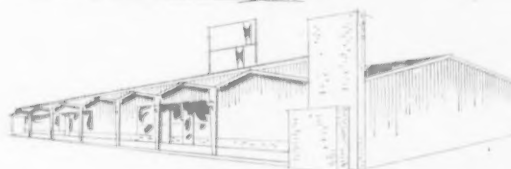
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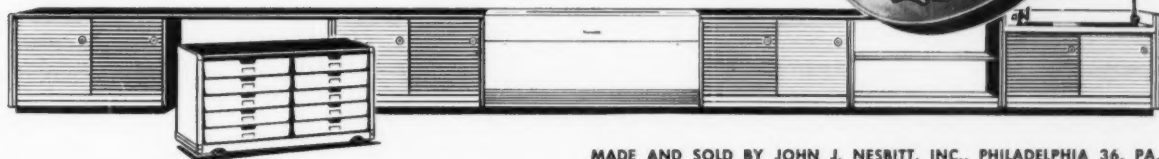
active learning

Your understanding of the importance of controlled heating, ventilating and natural air cooling—or year-round air conditioning—in every school or college classroom will suggest the use of a dependable unit system, which meets the varying usages, occupancies, activities and exposures with tailored comfort and economy—and you most certainly will think of Nesbitt's leadership in this field for more than 40 years.

You may know, as well, of the distinct contribution of Wind-o-line radiation when integrated with Nesbitt Syncretizers: how it provides a separate protection against cold window downdraft; and how its copper tubing can serve to pipe a whole series of classroom Syncretizers in a forced hot water system with large savings in building and equipment costs.

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no more, and he would complete the project according to specifications for that amount, and no more?" The witness admitted this would not be the case since the contractor would have claims if he found conditions different from those outlined in the bidding documents.

Eliminate Design Changes?

This prompted detailed discussion on design changes with the Corps

chief explaining that changes would always be necessary unless a great deal more money is spent on design.

"Why is it that the school (West Point), which above all schools emphasizes mathematics and physics, cannot compile specifications which can be submitted to a contractor, just as we submit a contract for a building down here on Pennsylvania Avenue?" Rep. Cannon queried.

General Itschner replied that there are more change orders in military

construction designed by private architects and engineers than in civil works construction, and observed that those buildings on Pennsylvania Avenue required just as many change orders as the structures built by the Army Corps.

The chief promised that his Corps would work toward the objective of no changes, and felt it could approach the goal, but he said there always would be change orders.

The committee did not go so far this year as it did in 1959 when it recommended that engineering and design costs be limited to five per cent of the construction cost of a project. That move was blocked after the American Institute of Architects, the National Society of Professional Engineers and others protested it.

The Appropriations Committee's report this year on Bureau of Indian Affairs, National Park Service and Forest Service said the material submitted to it by these agencies indicate that savings both in construction costs and personnel can be expected from greater use of standardized plans and specifications. As N.S.P.E. noted, however, the report gave no reasons for this conclusion.

The House group said the agencies involved should be able to effect a minimum reduction of 10 per cent in their engineering and design and construction supervision staffs in fiscal 1961 to offset at least part of the added program workload.

NPS has advised the committee that it cannot state its engineering and design costs as part of construction cost because of insufficient accounting data. It is moving toward a "break out" of these engineering and design costs in its future operations, however. Nearly 85 per cent of its program involves structures costing less than \$100,000 each, meaning relatively higher design charges.

The Bureau of Indian Affairs, on the other hand, reported an average of eight per cent of total estimated project cost for engineering, design and other related technical work. Of this, engineering and design costs were said to average approximately 3.5 per cent. The Bureau claimed the cost was favorable compared with similar work charges made by private architects and engineers.

The Indian Affairs bureau report indicated it had stopped all new construction designed by private architects and engineers.



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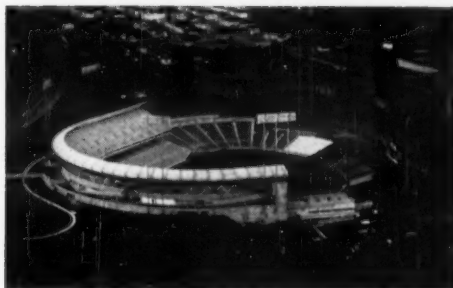
America's newest baseball arena is lit at night for maximum "playability" with 1147 Westinghouse Type VRC-20 1500-watt floodlights. The precise aiming of the lights was under the direction of Westinghouse Lighting Sales Engineer Reed Hansen, (below), and they are designed to burn at over-voltage increasing their normal candle power 37 percent. This means that players under most conditions enjoy visibility as good as daylight gives without the glare and shadows that frequently plague them on sunny afternoons.

Westinghouse floodlighting system maintains IES standards of intensity for playing areas. The striking design of the wind baffle tops massive concrete stadium. Two of the eight floodlighting towers that are spaced around perimeter of stadium are shown here.



J-94143-2





Giants' new home is Powered-Up for maximum nighttime "playability"

San Francisco's Giants racked up a 3 to 1 victory to open their season and inaugurate their new home in the West, Candlestick Park—one of the finest baseball stadiums in America.

Candlestick Park is a massive concrete structure that has an air of being weightless and soaring. Utilizing precast and prestressed beams and supports, the stadium consists of two tiers of seats (some radiant heated) that provide maximum "seeability" for 45,000 fans—with the upper deck topped by a unique wind baffle. To challenge the teams, foul lines extend 335 feet, and it's 420 feet straight from home plate to the fence. A giant scoreboard not only keeps tabs on the game in progress but also on action in both major leagues. A press, radio and loge-seat mezzanine, dress-

ing rooms, refreshment areas and an 8700-car parking lot complete the impressive installation.

The careful attention applied to the architectural design and construction extends to the electrical distribution system serving the stadium. To give the field maximum "playability" at night, 1147 1500-watt Westinghouse floodlights make this one of the best-lighted baseball diamonds in the country. Included in the electrical system are eight power centers (one for each lighting tower), master lighting control panel, individual lighting panelboards, dry-type transformer, motor

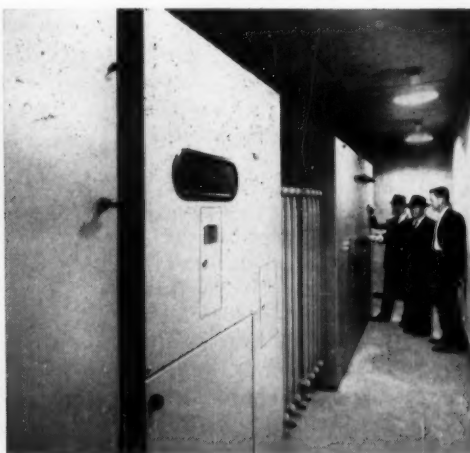
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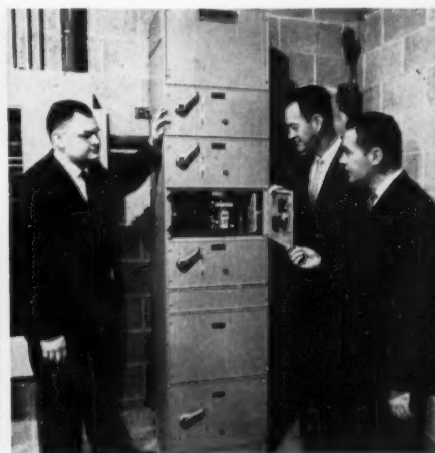
J-94143-3



Checking scale model of Candlestick Park are Lyle E. Patton, Consulting Electrical Engineer; John S. Bolles, Architect; Walter A. Haas, President of the San Francisco Recreation and Park Commission; and Raymond S. Kimbell, General Manager of the San Francisco Park Department.



Economical power distribution for Candlestick Park was achieved with eight Westinghouse unitized power centers of 750- to 225-kva ratings, each having plenty of expansion room. Each power center steps 12-kva primary power down to 120/208 volts to serve lights and electrical equipment. Inspecting one center: M. P. Buswell, Westinghouse Area Sales Manager; C. L. Harney, General Contractor; and L. E. Patton.



Motor control and protection are afforded by the Westinghouse motor control center under examination by H. G. Dechene of Brayer Electric; L. E. Patton; and D. G. Hartman, Westinghouse Sales Engineer. Such control centers group all controls together in interchangeable, space-saving, easily installed modular units. Starter units control and protect motors for air distribution units from centralized location.



Lighting for concourse and corridors is controlled and protected by Type NLAB panelboards located around stadium. Relays and control switches installed in this panel allow remote operation from centralized point. Seen examining this attractive flush mounted panelboard in stadium concourse are H. G. Dechene and G. R. Brayer of Brayer Electric Co.; and Spence Pors, Westinghouse Distributor Salesman.

Giants' new home (cont.)

control center, air handling equipment and motors. All are Westinghouse products, chosen for their ability to provide dependable, uninterrupted service. Careful attention to future uses for the stadium produced an electrical system capable of expansion. For example, the field lighting and related power supply equipment can be easily enlarged to provide the extra illumination required for nighttime football games. For information about how the Westinghouse products that Powered-Up Candlestick Park can meet your electrical needs, call your nearby Westinghouse Electrical Construction Engineer. Or write, Westinghouse Electric Corporation, Box 868, Pittsburgh 30, Pennsylvania.

OWNER: San Francisco Stadium Inc., for City and County of San Francisco

ARCHITECT-ENGINEER: John S. Bolles, San Francisco
E. Elmore Hutchison, San Francisco

CONSULTING ELECTRICAL ENGINEER: Lyle E. Patton, San Francisco

GENERAL CONTRACTOR: Chas. L. Harney, Inc., San Francisco

ELECTRICAL CONTRACTOR: Brayer Electric Co., San Francisco

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J-94143-4

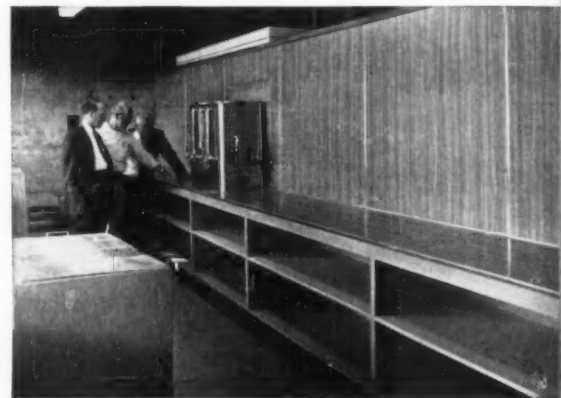
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Comfortable heating for Giants' locker room and clubhouse area is provided by Type AH horizontal air distribution unit, one of four in Candlestick Park. The inherent design of stadium construction, with widely separated points of heating demand, is an excellent application of Sturtevant air handling equipment.

Tough, durable Micarta® is ideal surfacing for Candlestick Park's refreshment counters. This hard-working plastic surface is immune to scuffs, knocks, hot liquids and rough treatment . . . is easily cleaned, never needs refinishing. Shown are Tom Morse, U. S. Plywood Salesman; Joe M. Moore, Cabinetmaker; and Bill Lyle, Westinghouse Micarta Salesman, examining Micarta counter top.





Central High School, San Angelo, Texas. Architect: Caudill, Rowlett and Scott. Associated Architect: Max D. Lovett. General Contractor: Rose Construction Company

RUGGED BEAUTY

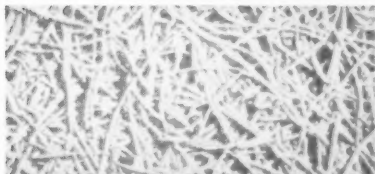
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San Angelo's beautiful new Central High School, with rugged INSULROCK Roof Deck, adds comfort insurance in all climatic conditions. The school's gymnasium and the natatorium are insulated from the sun's heat by the same INSULROCK Roof Decks that, indoors, give high light reflectance and absorb a lot of spirited noise. Almost 29,000 square feet of 2" INSULROCK, on bulb tees, cover these two buildings and adjacent corridors.

Central High School was winner of an Award of Merit in the 1959 Honor Awards Program of the A.I.A.



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Washington Topics

struction at one time after last year's Congressional criticism, directing that engineering and architectural work henceforth be done by its own staff. It claimed that work would thus be speeded and cost of reduced.

Spur to House Sales Seen in Lower FHA Downpayments

Speculative home builders are expected to move their unsold houses

much faster as a result of the Federal government action lowering down payment requirements on FHA-insured mortgages in the moderate price range.

The National Association of Home Builders reported that in many cases builders were unable to sell their product because prospective purchasers fell just short of qualifying. The margin might have been only a few hundred dollars, and the FHA action could tip the scales.

The new minimum down payment schedule calls for \$600 where the FHA value is \$15,000, compared with \$650 before the change; \$800 on FHA value of \$17,000 compared with \$1100 previously, and \$1200 on FHA value of \$19,000 where it had been \$1700.

Lack of Terminal Facilities Called Air Traffic Bottleneck

A spokesman for air line pilots says the nation is far behind in air terminal facilities compared with its advances in aircraft and the increased density of air traffic.

Clarence N. Sayen, president of the Air Line Pilots Association, told the Aero Club of Washington, D. C. that the lack of adequate terminal facilities is one of the most critical problems facing commercial aviation. This lack was called the primary bottleneck in the functioning of any air traffic system.

Highways But Not Runways?

He blamed much of this problem on a lack of adequate Federal expenditures for the Federal aid airport program. His comment: "The nation can complete 3589 miles of four-lane highway and 184 miles of six-lane or more per year, but it "requires practically a national emergency to secure another 1000 ft of concrete for a runway at an airport."

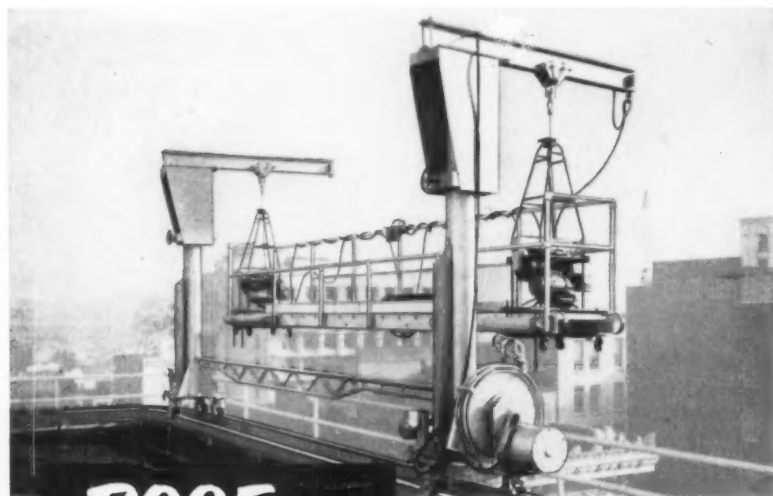
The present air traffic system can deliver the aircraft to the airport much more rapidly than the capacity of the airport can receive them, he asserted. He held that the severe bottlenecks exist both in getting the aircraft from the en route phase to the ground, and from the landing phase to the parking ramp.

In his opinion, huge sums of money are being wasted and the air traveler is grossly inconvenienced by the airport terminal limitations.

HHFA Asked for Major Study Of Housing Credit Picture

Concerned over the fluctuations of credit for home financing, the Senate's subcommittee on housing has called for a thorough study and report by the Housing and Home Finance Agency. The report would be

continued on page 344



Operating Position

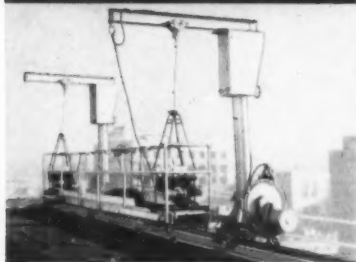
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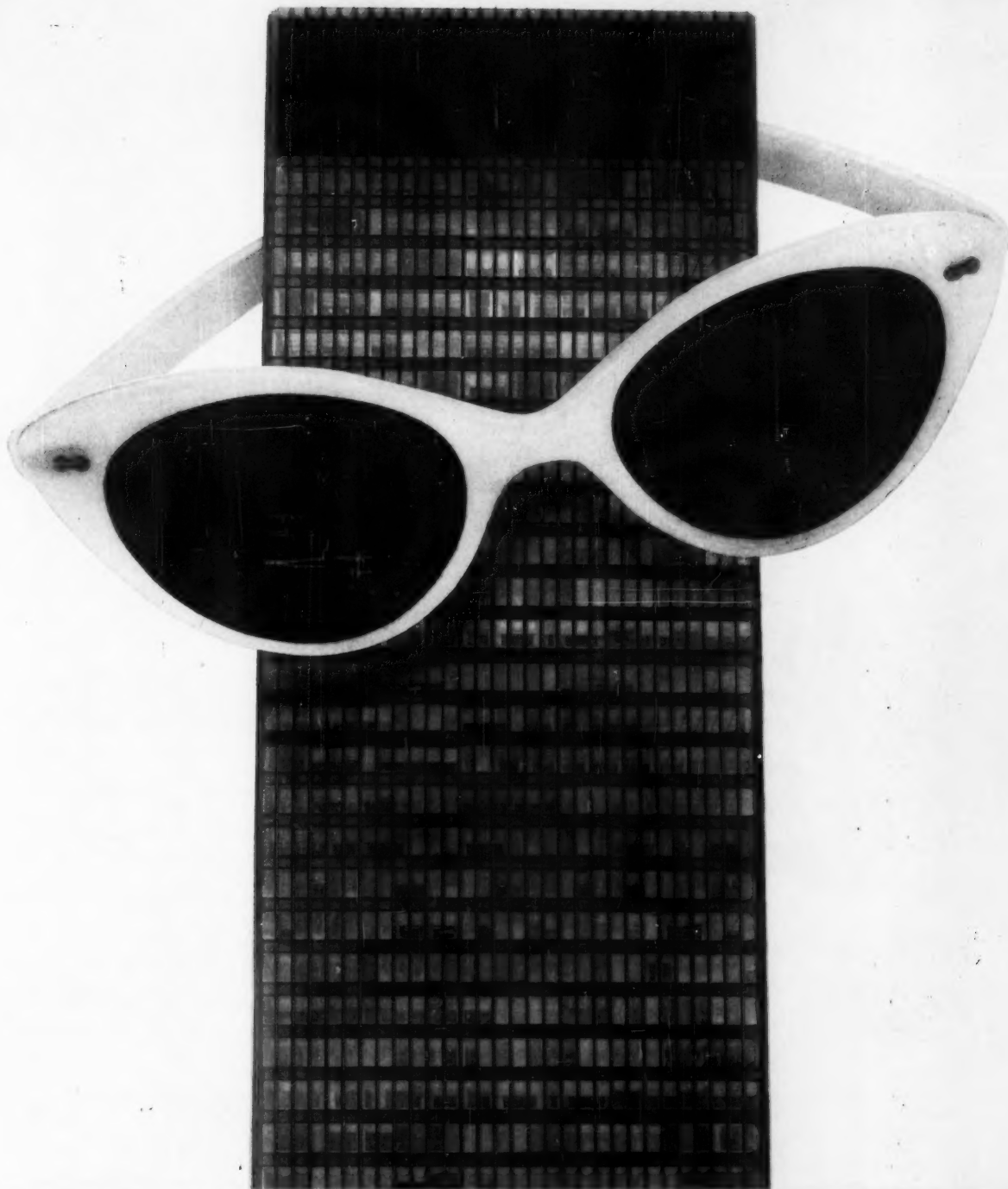
Electric horizontal power shown in illustrations.



Storage Position

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Famous Park Avenue beauty enjoys Flexalum light control

Regard the Seagram Building. What glamour it adds to Park Avenue! How shapely! How well-groomed! For its 3,676 windows, the architects naturally chose Flexalum Twi-Nighter venetians. What's more, Hunter Douglas engineered two custom features so that haphazard slat-tilts and blind heights wouldn't interrupt the symmetry of the building's facade. A special 3-stop action keeps the blinds fully raised, fully lowered, or set at one happy medium, while the unique tilt mechanism

fixes slats at a 45-degree angle. No other window covering is so ideal for buildings with curtain-wall construction.

Naturally, Hunter Douglas is concerned with the people *inside*, as well as sight-seers *outside*. Flexalum venetians give real light control, let in soft, diffused light, or make rooms dark and strictly private. As for maintenance problems, there aren't any. Only Flexalum venetians are designed as an integrated whole, so they don't suffer from malfunctions that often afflict blinds

whose parts have been garnered from several sources. Flexalum venetians won't rust, chip, crack or peel. And they're guaranteed for 5 years. See our latest specs in *Sweet's Architectural File 19d/Br* or write to: Dept. AR-6, Bridgeport Brass Co., Hunter Douglas Division, Bridgeport, Conn.

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Washington Topics

made no later than next January 1 and would cover:

1. An analysis of total mortgage credit requirements which may be needed to support new residential construction activity of 16 million permanent nonfarm units on a stable basis during the 10-year period starting January 1, 1961.

2. The extent to which this volume of credit may be available, on a stable basis, without revision of the enabling legislation or the ad-

ministrative policies of the Federal National Mortgage Association, or without the creation of a new institution to provide an active secondary market for loans insured by the FHA or guaranteed by the VA.

3. The desirability of creating an independent board to establish interest rate policies for programs administered by the FHA and VA, and to establish purchase and marketing policies of the FNMA or any other institution created to provide a sec-

ondary market for loans insured by FHA or guaranteed by VA.

The subcommittee's report suggested that FHA's contribution to a more stable mortgage money market could be improved by study in these areas; amount, method and collection of the agency's insurance premium; increased use of certifying agents to reduce processing delays, and the possibility of FHA operating solely through its fee and premium income.

A New Fanny Mae?

The subcommittee took the position that FNMA, as it now stands, cannot be expected to supplement and stabilize the flow of mortgage credit to the extent desired. This, it said, would mean reconstituting FNMA or creating a new institution, such as a central mortgage bank.

PHA Expects Unit Totals of 25,000 This Year, 30,000 Next

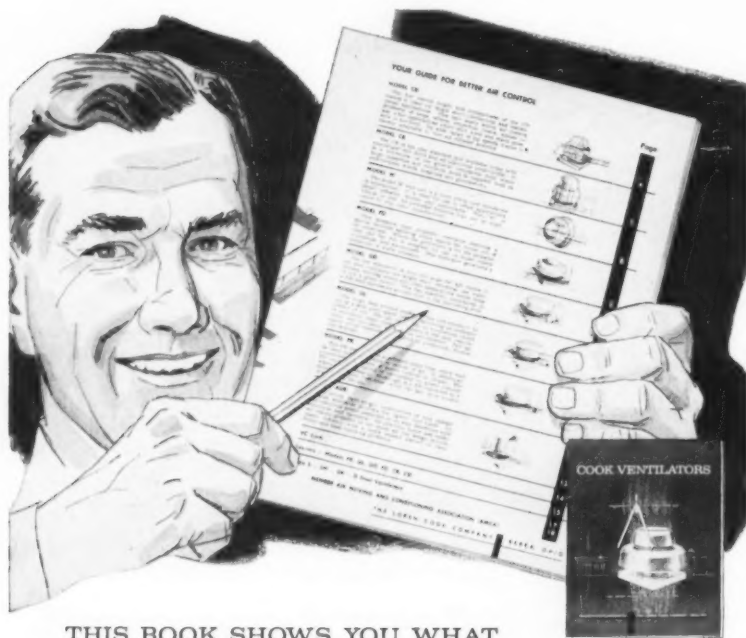
Congress has been informed that the Public Housing Administration expects the start of approximately 25,000 new public housing units this fiscal year (ending June 30). PHA Commissioner Lawrence Davern told a House Appropriations subcommittee that about 3,000 such units will get underway during the next fiscal period.

Mr. Davern described the maintenance of these public housing units as a constant problem, one that becomes more and more difficult each year with project income going down. On the question of cost, he said the agency is operating on a policy that called for project design and materials to conform to what is being done for middle income private housing in the locality. This involves an "economical use" of the land.

The Commissioner held a national cost limit to be unworkable because it raises costs in low-cost areas and pinches them in the high-cost localities.

OCDM Wants More Shelters, Congress Backs Off

The nonmilitary defense program of the nation was outlined to Congress by Leo Hoegh, head of the Office of
continued on page 348



THIS BOOK SHOWS YOU WHAT

Cook  **CONTROLLED VENTILATION**
WILL DO FOR YOU!

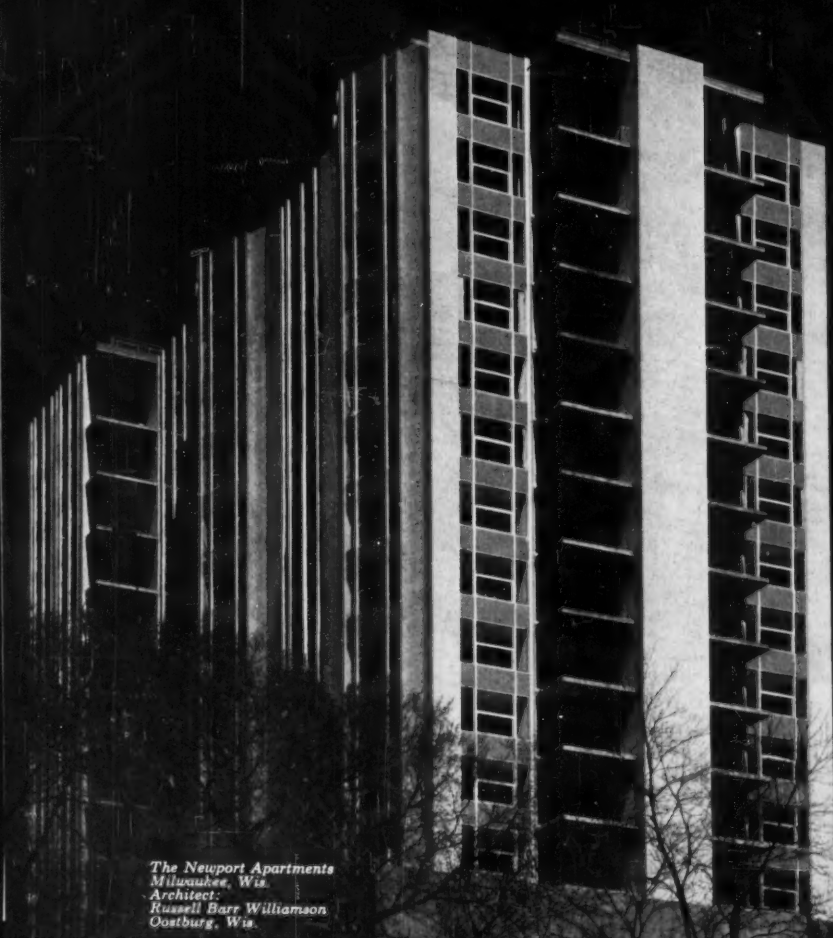
- ★ Assures the right ventilator for every job
- ★ New Economy and Ease of Installation
- ★ All Aluminum Quality Construction means trouble free, maintenance free service.

Here's the reason. You can tell at a glance which of the Cook line will work for you. Cook has the most complete line of air control ventilation equipment available. Cook ventilators are engineered to your exact job requirements for top efficiency and lasting economy. We'll be glad to send you a copy of our new booklet which takes the mystery out of specifying ventilating equipment.

Please send me a copy of your 1960 Controlled Ventilation catalog.

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Position _____
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THE LOREN COOK COMPANY • BEREA, OHIO



*The Newport Apartments
Milwaukee, Wis.
Architect:
Russell Barr Williamson
Oostburg, Wis.*

whether you
specify curtainwall
for
economy
or
effect...

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You have a choice of two curtainwall systems when you specify MARMET. The 5212 Series, or the 5142 Series used on the magnificent luxury apartments (under construction) above, provides strong vertical accent lines with heavy aluminum mulls designed to receive spandrels and lite sections, stacked one atop the other. With lightweight muntins, these panels can easily be handled by two men . . . often stacking from the inside, saving the cost of exterior scaffolds.

Where the effect of heavier horizontals is preferred . . . MARMET's 6442-43 gridwall system employs large interlocking grid sections pre-assembled at the factory with heavy aluminum horizontals. Vertical mulls lock together with provision for controlled expansion at each joint. These special expansion joints absorb cumulative expansion horizontally and/or vertically in structures such as the hospital at the right.

Whether its *economy* or *effect* that's most important on your next curtainwall requirement . . . remember MARMET has it!

*St. Mary's Hospital
Detroit Lakes, Minn.
Architect:
Foss & Company
Moorehead, Minnesota*

series 5212 & 5142



for LOWEST ASSEMBLY COST
Vertical mulls receive stacking panels

series 6442-43



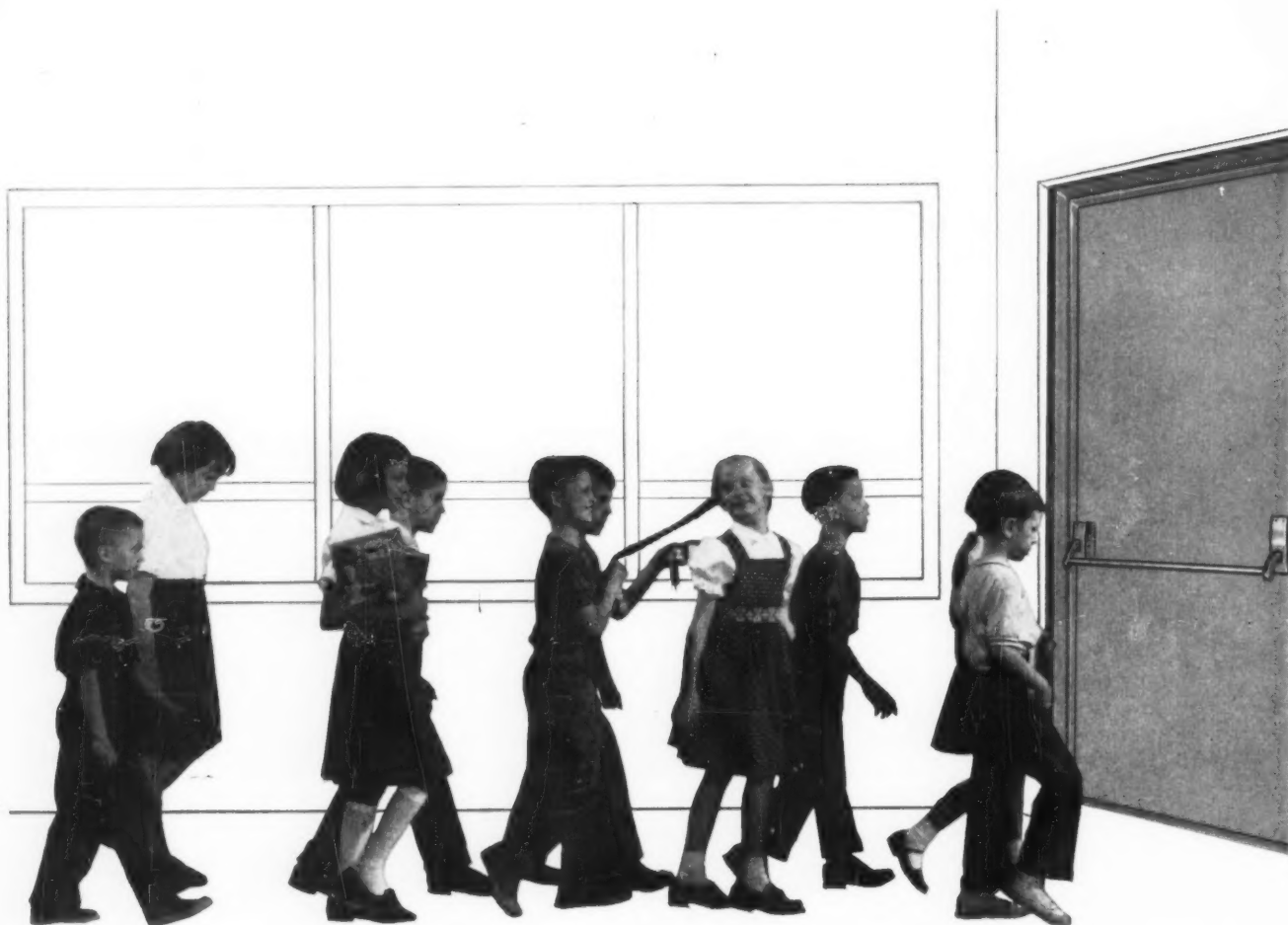
for HEAVIER HORIZONTALS
pre-assembled gridwall sections

For additional information on the complete line of MARMET products—consult Sweet's Catalog File No. 17a or write to MARMET for catalogs Mar. 60-wc

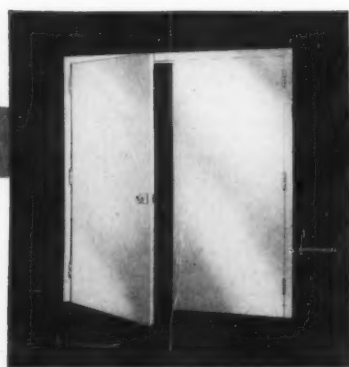
MARMET CORPORATION

300-X Bellis Street, Wausau, Wisconsin





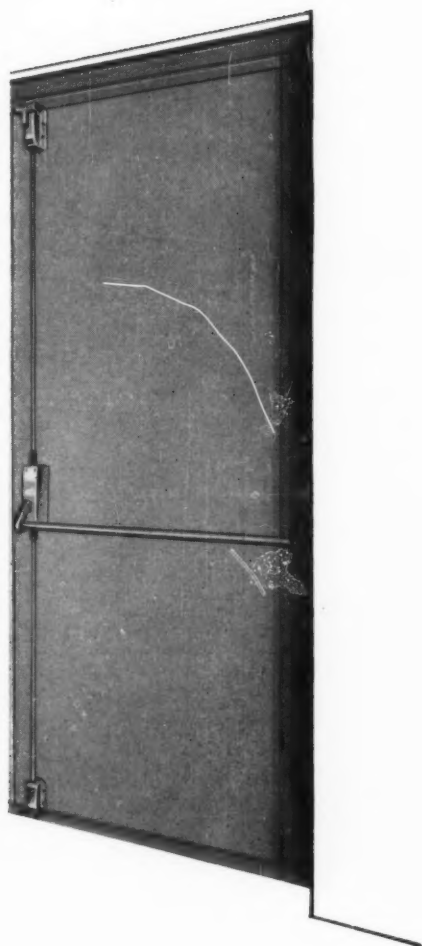
Overly Church Spires



Overly "A" Label, Type 50 Doors



Overline Stainless Steel Entrances



NEW

Overly Fire Barrier protects these lives

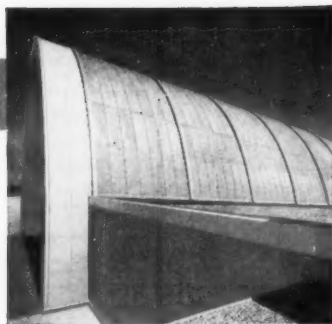
The successful Underwriters' Laboratory test of the new Overly Fire Barrier with exit hardware has brought an end to the need for illegal fire protection and safety compromises that would endanger these lives. For the first time, architects can specify and actually receive a fire barrier that is *both panic-proof and fire-proof*.

Manual throw bolts, the great hazard on earlier panic doors, are no longer used. A unique Overly frame that contains an automatic top bolt eliminates the danger of a locked inactive leaf under panic conditions. This new Overly-crafted product with Sargent exit hardware uses *fully labeled* doors and hardware, not just "labeled construction," which means not really U/L tested. In the Overly Fire Barrier, the doors are staunchly secured against fire and heat pressure, yet *both* leaves are easily released by the smallest child under panic conditions.

For the first time, architects now have a maximum performance fire barrier that is fully tested up to 3 hours for fire and panic conditions. The Overly Fire Barrier permits architects to design greater safety into schools and public buildings, and also assures building owners of more favorable rate considerations in fire and safety insurance. This is the first and only fire barrier product to satisfy *both* U/L fire safety and casualty and accident requirements.

Overly's new Fire Barrier is the most recent in a series of modern safety advances pioneered by Overly craftsmanship in U/L approved door, frame, Fire Barrier* and accessory products. Other Overly products include Overly Tilt-A-Front construction, specially designed for one and two story buildings; Overly Church Spires, carefully crafted artistry in all metals; Overly Roofs, prefabricated and erected by Overly anywhere; and Overly Doors and Frames, available in over 90 styles.

**Overly Fire Barrier installations may be found at the following locations: Our Lady Of Angels High School, Cincinnati, O.; Marion County Schools, Marion County, W. Va.; Carlisle Schools, Carlisle, Penna.; St. Casimir School, Lansing, Mich.; Longfellow School, Harvey, Ill.; and Weirton Schools, Weirton, W. Va.*



Overly Pre-fabricated Roofs

The Architect's Craftsman

Overly

MANUFACTURING COMPANY

Greensburg, Penna. • St. Louis 19, Missouri • Los Angeles 39, California

Civil and Defense Mobilization, when he went before a House appropriations subcommittee to request more than \$7 million for research and development during the fiscal period beginning July 1. Four million dollars is being spent in this field this fiscal year.

Included is the construction of government underground control centers and constant experimentation with prototype shelters of various kinds.

Director Hoegh has told Congress, "There is every evidence that the program is beginning to pay off, and that shelter construction is gaining real impetus. Home builders are including shelters in homes at reasonable costs. Millions of individuals have asked for our books on shelter plans. Newspaper ads are beginning to appear. Construction companies and local builders are advertising home shelters built to the specifications of OCDM.

"Many private architects and builders are creating prefabricated shelters built from their own designs, but still meeting OCDM specifications. Many industries have incorporated fall-out shelters in their institutions. Thousands of shelters are being built by people and industries throughout the nation."

Current Program Varied

In its 1960 (fiscal year) program, the agency is building one underground garage which can do double service as a fallout protection area; three school prototypes which can provide fall-out protection in cafeteria areas, an assembly area and in classrooms, all underground, and an understreet shelter as well.

Two protective hospital projects are in the current program—one in Texas, the other in New Jersey.

OCDM also is constructing 38 community shelters, each with capacity of 50 persons, and a city block shelter, along with 100 family shelters, some of which already are completed. Funds requested for fiscal 1961 would finance construction of 250 additional prototypes to complete the program, Mr. Hoegh said.

More Prototypes Wanted

The agency would like to spend \$2.5 million on prototype construction alone next fiscal year. Another \$1 million would go into shelter phases of the research and development effort. More surveys of existing structures to determine their worth as shelter areas are planned if the money is forthcoming. Buildings already surveyed for this purpose are located in Contra Costa County, Cal.; Tulsa, Okla.; Montgomery, Ala.; and Milwaukee.

The General Services Administration, in its own budget request, sought \$6 million to be spent next year on special fallout shelter construction in existing Federal buildings.

Congress Not So Eager

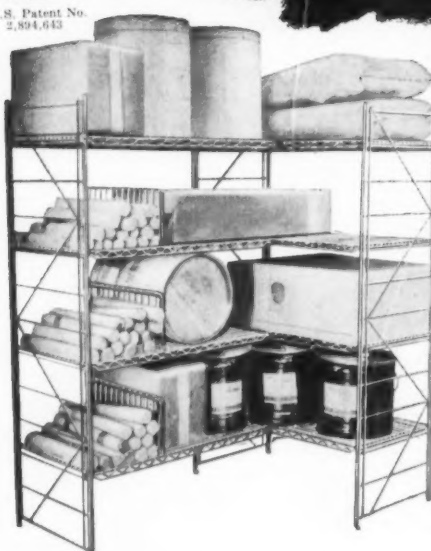
Congress apparently is not as enthusiastic about the idea of shelters in government buildings as is the OCDM. The independent offices appropriations bill for fiscal 1961 has carried a provision prohibiting use

continued on page 356

Shelve STORAGE PROBLEMS WITH ERECTA-SHELF*

* U.S. Patent No. 185,801

* U.S. Patent No. 2,894,643



- Erecta-Shelf on wheels rolls away storage problems.
- Corner Braces eliminate post, permitting full use of corner space.
- Erecta-Shelf platforms keep storage high and dry. Simplifies cleaning!
- Shelf Dividers adjust to any arrangement, to make neat, orderly compartments.
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SPECIFY THIS LOW COST SHELVE

Erecta-Shelf's steel rod construction supports up to 1,000 lbs. per shelf! Shelves and uprights friction-fit into place without nuts, bolts or special tools! Assembly takes only minutes. Simple additions adapt Erecta-Shelf to most any height, depth or length requirement. You can count on Erecta-Shelf for a quick, easy, low cost solution to just about any storage problem!

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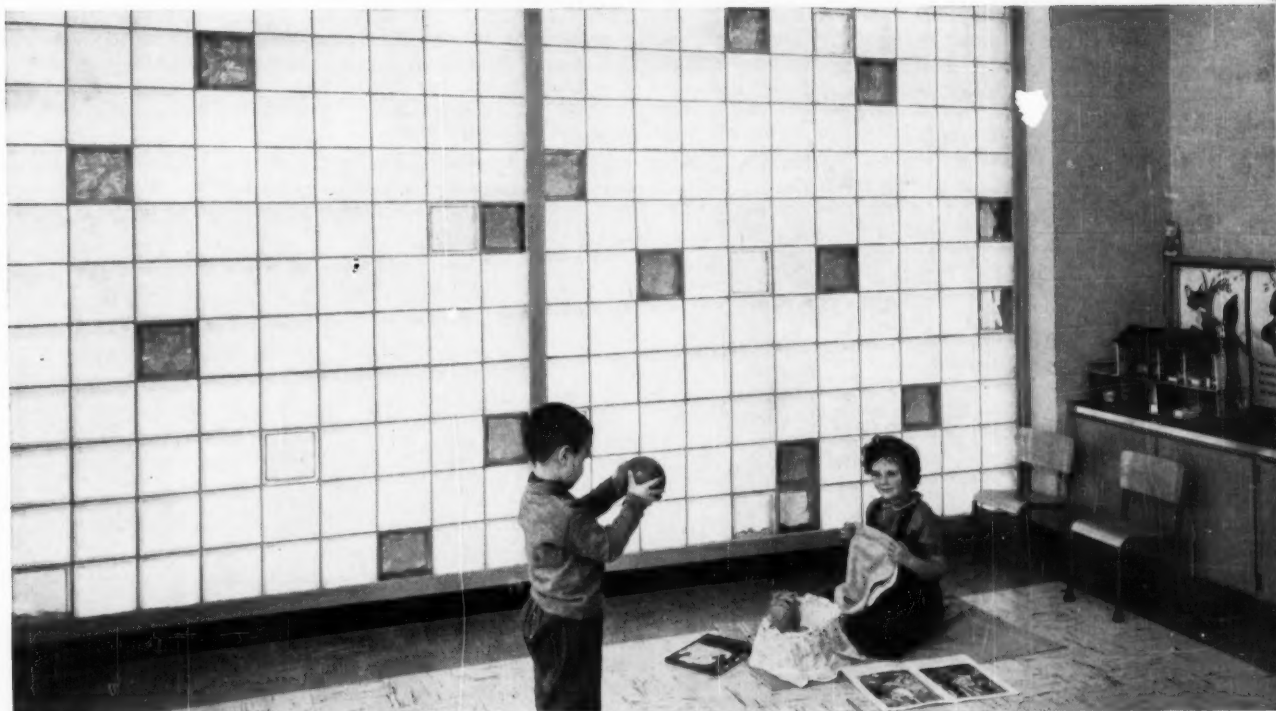
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See why
Pittsburgh Corning Products
make the things you build
cost less, last longer, look better



Central Park School, Dundas, Ontario, Canada. Architect: Allen & MacIver, Hamilton, Ontario.

example: PC Glass Blocks to brighten the world of learning

The learning environment gets a new lift from disciplined design with PC Glass Blocks. Here is the one material able to combine the desirable characteristics of window and wall at once. Precise direction and diffusion of transmitted natural light. All the insulation value of a 12" concrete block. And the brilliant sparkle of 12 ceramic face colors for color accents—now available on architect's specifications. Like the church described on a following page, this school wall dramatizes the increasing authority over design which Pittsburgh Corning's growing line of PC Glass Blocks puts at the architect's disposal.

Take advantage of the coupon on the fourth page of this advertisement.

P I T T S B U R G H

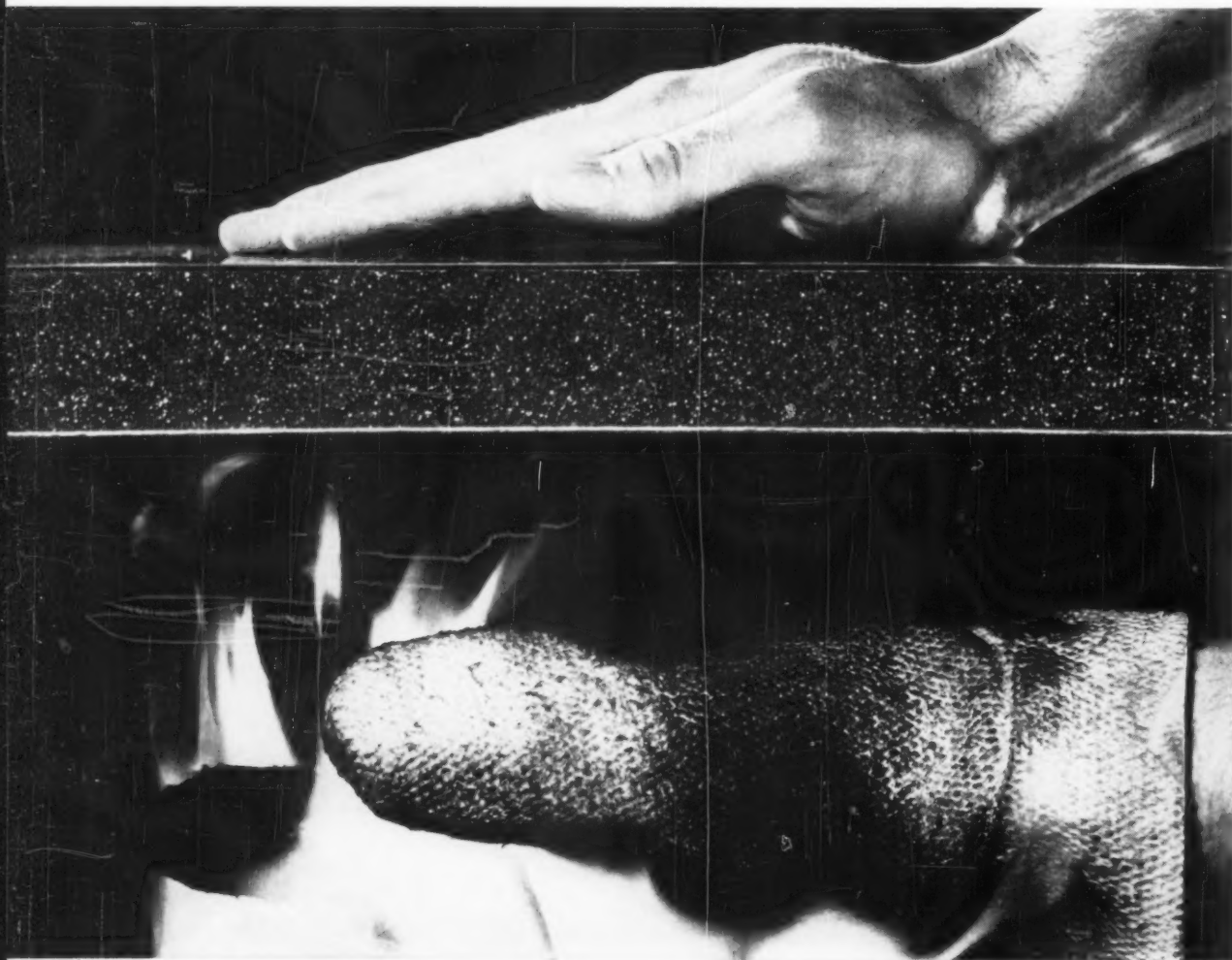


C O R N I N G

example: FOAMGLAS[®] insulation to keep heat in its place for good

Most roof insulations do an adequate job of controlling heat flow when they're first installed. But only FOAMGLAS roof insulation maintains its initial permanence level for the life of the building. The reason is simple. FOAMGLAS is the only thermal insulation composed entirely of sealed glass cells. Result: moisture can never penetrate FOAMGLAS to form a heat leak as it does in other materials. Insulating performance never varies. This is one of the many excellent reasons for a FOAMGLAS specification on a roof . . . as well as walls or piping—wherever heat flow must be controlled. Page 4 of this advertisement details more of the FOAMGLAS insulation story.

Take advantage of the coupon on the fourth page of this advertisement.



P I T T S B U R G H



C O R N I N G

example: PC Glass Blocks to add color with dignity in a reverent place

Brilliant color in a disciplined design adds warmth, welcome and restrained identity to the church you see here. The continued evolution of glass blocks has made such interpretations possible . . . at an initial cost far lower than possible with other materials. PC's Color Glass Blocks have provided a whole spectrum of professionally selected shades for the architect. And very soon PC will announce a dramatic new use of architectural light and shade. These are the vital elements of design authority which have become the continuous thread of design oriented PC Glass Block development by Pittsburgh Corning. And see how good design can be added to important functions as in the classroom shown on page 1 of this advertisement.

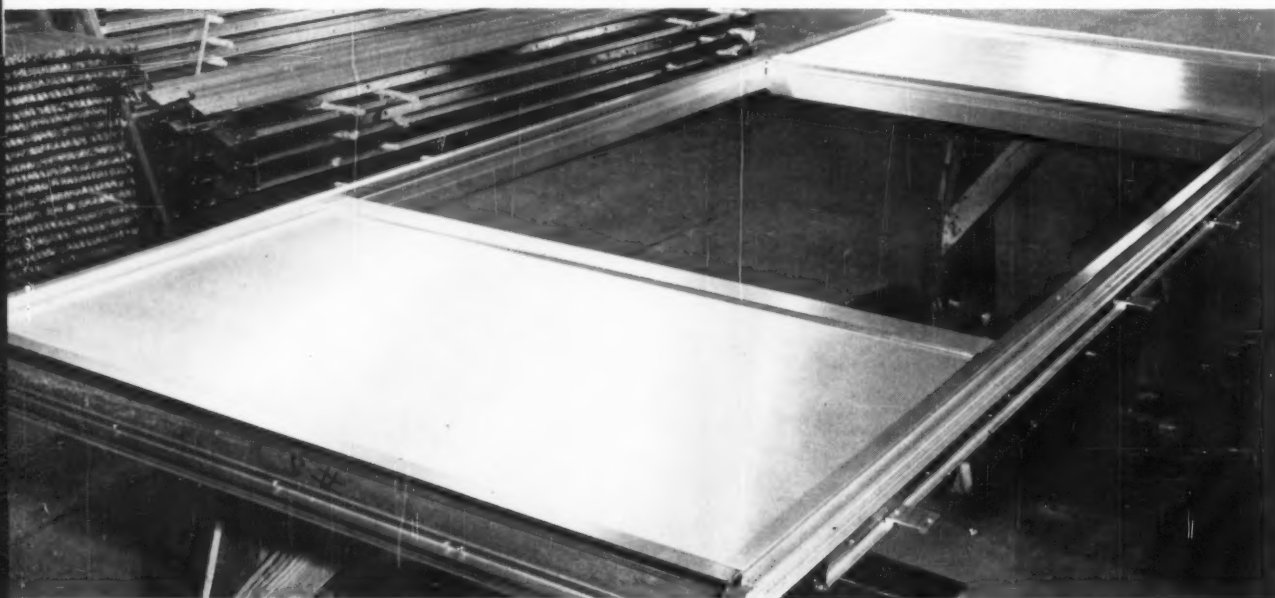
Take advantage of the coupon on the fourth page of this advertisement.

Grace Evangelical Lutheran Church, Peoria, Illinois. Architect: Richard Hapke, Peoria, Illinois.



example: FOAMGLAS® core insulation to smooth the skin of this curtain wall panel

Permanent skin flatness has assumed increasing importance in curtain wall panel design. And you'll seldom see a panel with skin so flat, true and smooth—permanently—as you see on this page. Pittsburgh Corning's FOAMGLAS core insulation makes the difference. The unique strength and rigidity of this insulation forms a firm support for the many types of curtain wall skins. Since FOAMGLAS is dimensionally stable, it can't soften, slump or sag . . . prevents dimpling and oil canning after installation. Add this to the lasting insulating value described on an earlier page and the soundness of a FOAMGLAS specification becomes increasingly clear. (To be continued)



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Dept. B-60, One Gateway Center, Pittsburgh 22, Pa.

Please send me descriptive literature on the building products checked below.

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| <input type="checkbox"/> FOAMGLAS Roof Insulation | <input type="checkbox"/> PC GLASS BLOCKS |
| <input type="checkbox"/> FOAMGLAS Low Temperature Insulation | <input type="checkbox"/> The PC 4 x 12 Block |
| <input type="checkbox"/> FOAMGLAS Insulation for Piping & Eqmt. | <input type="checkbox"/> PC Color Glass Blocks |
| <input type="checkbox"/> FOAMGLAS STAY-DRY Pipe Insulation | <input type="checkbox"/> FOAMSIL®, the Acid-proof |
| <input type="checkbox"/> FOAMGLAS Insulation for Curtain Walls | Insulating Refractory |

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C O R N I N G

With P-B Components any house is—

...enclosed in one day
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three weeks

—and the builder
saves 15% of his
building costs!

HERE'S HOW:

The components are **BIG**
and custom-built to fit any plan

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- Your gable components are generally the width of the building—

HERE'S WHY:

With large components you get savings not obtainable in any other way and—these savings are made possible because of the "Big Sheets" of Homasote that are tough enough to stand the handling of large sections and, at the same time, are not affected by the weather in case a storm stops the operation before the house is closed in.

It takes only 11 seconds longer, with four men, to put an 8' x 14' P-B Component into place than to put an 8' x 4' "baby" panel into place; but you have erected, in less than a minute, $3\frac{1}{2}$ times as many square feet!

Once erected, the components are ready for the exterior finish and the interior decoration.

To save money in conventional building—send us your blueprints for a free Cost-Reduction Analysis. They will be returned with an engineering report on the savings you can make with Homasote Materials. Homasote Board-and-Batten and Grooved Vertical Siding construction are lower in cost than anything else you can use currently for exterior walls.

- The floor panels are covered with factory-finished $2\frac{3}{32}$ " oak flooring which you cover immediately with Sisalkraft-type paper, leaving it on until the owner is ready to move in. When you finally take it up, he has bright, shiny new floors and you have eliminated a lot of extra cleaning expense.
- The ceiling panels are ready for decoration as soon as they are in place.
- The roof components have $\frac{5}{8}$ " Homasote sheathing already applied, with joints flashed to prevent leaks before the roofing is applied. This, too, saves a lot of field labor.
- And you can erect the average house in one day!



Please write for our 8-page brochure containing complete details. Kindly mention Department F-5.

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ARCHITECTURAL RECORD June 1960 353

New! another First

World's First Combination Gas Heating/Electric Cooling in One Compact Unit that Fits a 3' x 3' Closet!

*Especially created to solve your heating-cooling problems
for apartments, motels, dormitories, nursing homes,
medical centers, small commercial jobs*

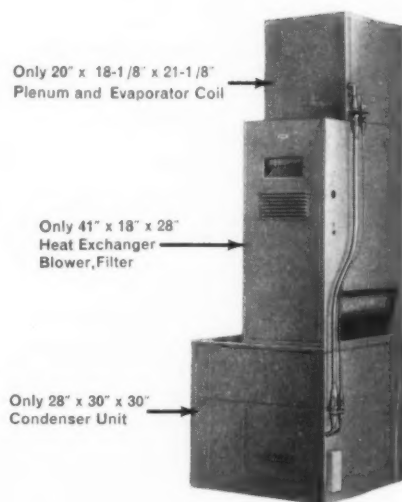
Never before so *much* in so little space—40,800 Btuh heating output (all gases)—22,000 Btuh cooling at ARI standard—all from a compact unit measuring only 89" high and taking only 3' x 3' of floor space. Truly a remarkable achievement—a new climax in 65 years of Lennox engineering leadership!

Matching the compactness of this revolutionary new "package" is its unequalled adaptability. Not only is it ideally suited for installation in a 3' x 3' utility closet with exterior wall but, also, it is equally suitable for air-shaft or remote applications. It is so compact, it may be installed when building is in finishing stage.

For full information or the name of your Lennox Technical Representative—address: Lennox Industries Inc., 426 South 12th Avenue, Marshalltown, Iowa.

Refrigerant Quick Connectors

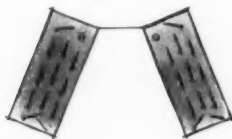
No welding! No screwed joints! No adapters! Only one mechanical joint! Pre-charged refrigerant lines with U.L. listed self-sealing "quick couplers" permit safe storage and greatly simplify the field installation of the factory-charged condenser and evaporator units and their connecting tubing.



from Lennox

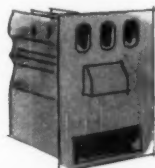
40,800 Btuh heating output—

22,000 Btuh cooling at ARI standards—from a unit only 89" high



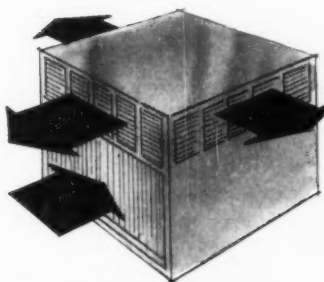
EVAPORATOR COIL

More than 1 sq. ft. net face area per ton of rated capacity. Low resistance to air travel reduces blower power requirements. High dehumidifying capacity.



HEAT EXCHANGER

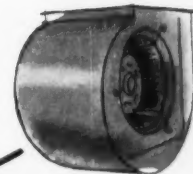
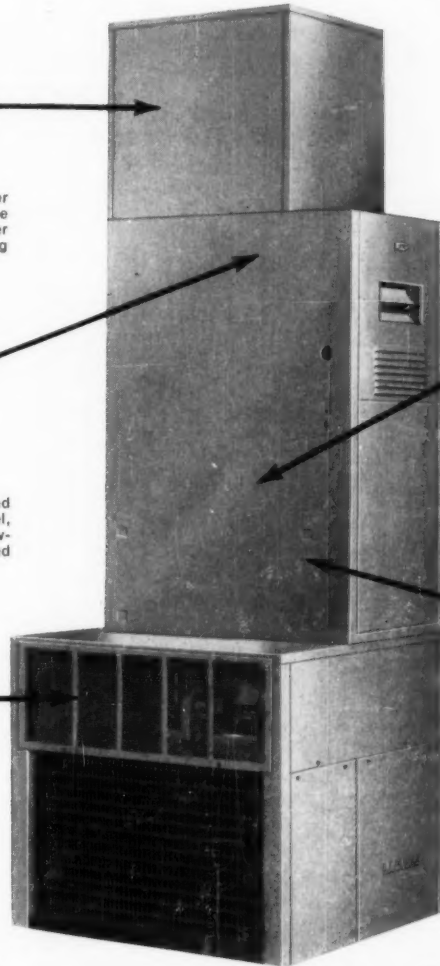
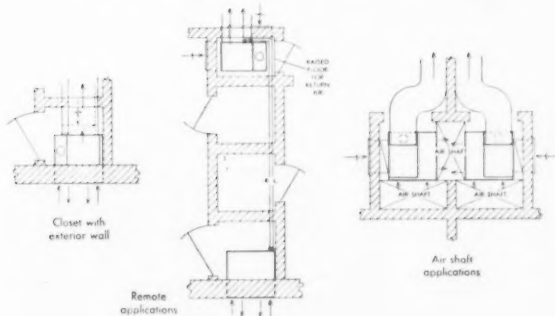
Heavy gauge steel, continuous welded construction. Three aluminized steel, ribbon-type gas burners easily removable for cleaning. Factory-installed back draft diverter.



THE MOST INSTALLABLE PACKAGE EVER ENGINEERED

Condenser air may be discharged from coil side of unit or from right- or left-hand side—furnace section may be rotated 180°—permitting terrifically wide range of applications.

MAY BE INSTALLED 'MOST ANYWHERE!



BLOWER

Direct drive; delivers ample cooling air quietly, economically. Blower and resiliently mounted motor operate at low rpm, deliver constant air volume against normal, varying static pressures.



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Another Lennox "exclusive"—has TWICE the usual filtering area: 74 sq. in. per 100 cfm of delivered air. Throw-away type filter media, 1" thick, easily accessible for changing.

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WORLD LEADER IN INDOOR COMFORT
FOR HOMES, BUSINESS, SCHOOLS, INDUSTRY

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Brooklyn 22, N. Y.

Washington Topics

of any of the funds for fallout shelters in government-owned or leased structures "except where specifically provided." The House Appropriations Committee said that construction costs for public buildings were often "unnecessarily" increased because of the OCDM regulation that these buildings include fallout shelters.

"This may be desirable in some instances," the committee's report read, "but such a requirement should be specifically justified for each project."

The committee approved \$144.8 million to begin construction of 20 Federal buildings under the new direct authorization program passed by Congress. It cut budget requests for each project by some 15 per cent, however, five per cent of the reduction applicable to fallout shelters.

No Shelters, No Monuments

The House committee report dealt with the shelter matter in this way:

"Funds are specifically disallowed for installing a fallout shelter in each project. In arriving at final plans and specifications, the committee desires that good, substantial, and usable buildings be completed, but strongly urges the Administrator (of General Services Administration) to leave out all unnecessary features and trimmings, and that no architect be permitted to build a local monument to himself."

Congress Cuts Urban Renewal To Third of Funds Asked

Congressional appropriation of \$17.5 million in supplemental funds for the Urban Renewal Administration's capital grant program puts it back on the track but not nearly as far in that direction as URA would like to have it.

Commissioner David M. Walker pleaded for \$50 million for the balance of this fiscal period, until June 30. Anything short of this, he said, would mean delays, refinancing of borrowings and added interest charges.

URA held \$80 million in demands for earned grant payments that had

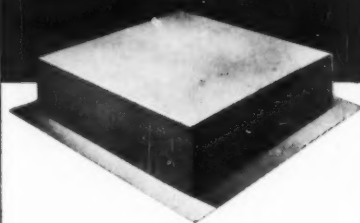
continued on page 360

JAY-PANS

America's Finest
Forming Medium for
CONCRETE

CONSTRUCTION

Saves money! Saves labor!
Saves time!



ECONOMICAL! Although priced competitively with conventional forms, Jay-Pans give you more for your money! Always new . . . custom built . . . they eliminate drippage, and the vertical sides mean good savings in concrete, as well as a nice, smooth appearance.

LABOR-SAVING! Jay-Pans are tailored for any job, and when cutting is necessary, all that is required is a saw or pocket-knife. Sand is never placed under a Jay-Pan pour, and jobs stay on schedule because there are always enough Jay-Pans on the job site. Lightweight, easy to use, Jay-Pans end chipped floors, save both time and men!

WEATHER-RESISTANT! These are not regular "paper" pans. Jay-Pans are made of "freezurboard"—a patented, heavy-duty asphalt-impregnated material similar to asphalt roofing, which is saturated with asphalt. Millions of square feet of federal government, state, and private projects have proved the reliability of Jay-Pans under all weather conditions.

ALL SIZES! Tapered, adjustable, long-span, waffle, or cored slab, Jay-Pans give a clean job . . . come in all standard sizes as well as practically any other size you need to fit your most economical module.

For Full
Free
Information



**LAWRENCE
PAPER
COMPANY**

Construction
Products Division,

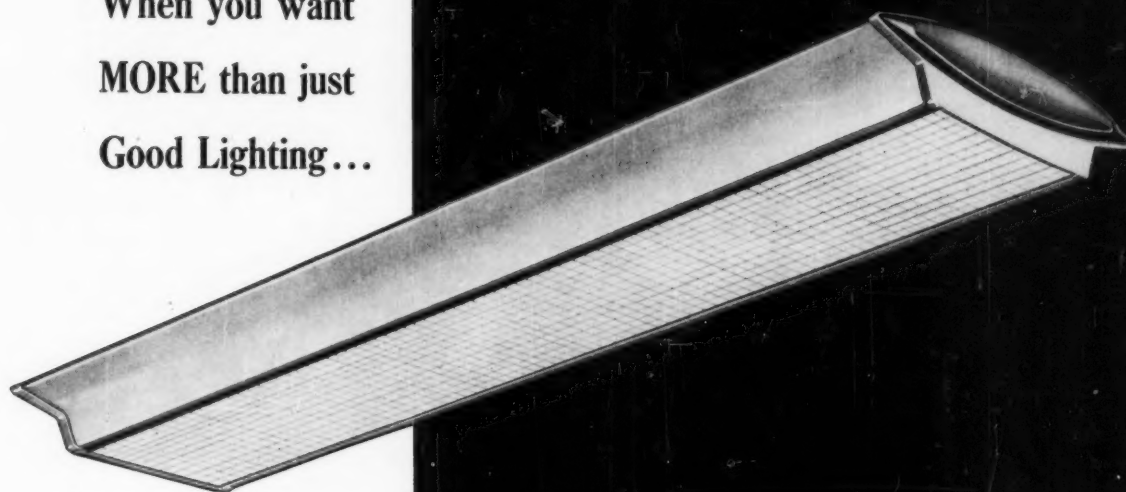
Viking 3-8111 Lawrence, Kansas,

When you want
MORE than just
Good Lighting...

You want
**Sylvania's
CLASSIC**
Series

*Every Classic Fixture
Now Produced**
Contains the New Solid-Fill
Jefferson DRI-LOK Ballast!*

***in standard voltage*



"Fluorescent lighting fixtures today must do more than provide good illumination. They must also add a distinct element of attractiveness to the ceiling to complement the overall interior décor."

With this concept in mind, Sylvania's Engineering Department, working together with the renowned industrial designing firm of Peter Muller-Munk Associates, created a new fixture family that is truly outstanding.

This is the CLASSIC Series by Sylvania.

The CLASSIC achieves, through its pointed elliptical shape, the elegance and style demanded by today's leading design concepts. This new fixture group features sleek, trim lines; flared, softly-diffusing side panels; and slim shallowness... all of which combine to provide a graceful appearance for any interior. To satisfy individual choice, plastic louvers or plastic panels are available.

And the practical aspect has not been ignored either. In addition to its extreme attractiveness, the CLASSIC also provides other important features... high-quality lighting characteristics and excellent installation and maintenance advantages.

But a mere description of the CLASSIC is hardly adequate. To appreciate the true beauty and application possibilities of this series you should see the fixture itself.

Write for full information today... and ask to have the CLASSIC* demonstrated in your own office.

Sylvania Lighting Products

A Division of SYLVANIA ELECTRIC PRODUCTS INC.

One 48th Street, Wheeling, West Virginia

*Patent Pending

GO MODERN WITH LIGHTING BY

SYLVANIA

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

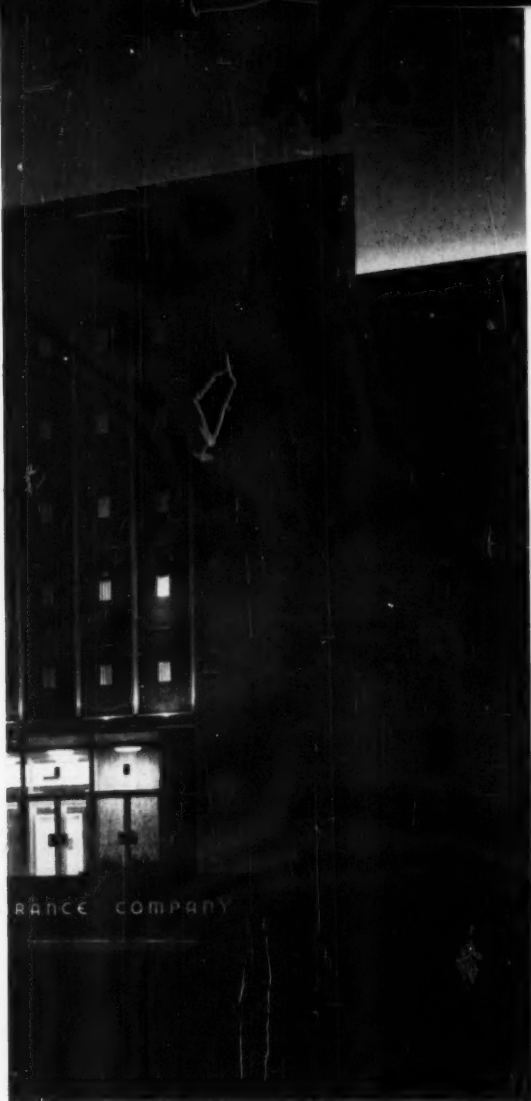
FLUORESCENT LIGHTING FIXTURES AND SYSTEMS • BEST FIXTURE VALUE IN EVERY PRICE RANGE



More than 1800 fluorescent fixtures in Old American's new building help create this striking nighttime impression.

110 footcandles of glare-free illumination are maintained throughout, including this attractive lounge for employees.





How Old American Insurance Co. ended the great lighting search with Day-Brite

True to Missouri tradition, Old American Insurance Co. adopted a "Show Me" attitude when considering lighting for their new Kansas City headquarters.

They contacted their local power and light company engineers. Consulted the experts at General Electric's famed Nela Park. Even made their Addressograph Department a "lighting laboratory" and installed competitive fixtures side-by-side.

Result? For lighting effectiveness with high visual comfort, over-all economy with trouble-free maintenance, and pleasing appearance, Day-Brite lighting was the clear-cut choice.

May we show *you*? Call your Day-Brite representative, listed in the Yellow Pages, for the **FACTS** and **FIXTURES**! *Day-Brite Lighting, Inc., St. Louis, Mo. and Santa Clara, Calif. In Canada: Amalgamated Electric Corp., Ltd., Toronto 6, Ont.*

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Washington Topics

to be met by the end of the fiscal period, Mr. Walker said. It had but \$33 million left at the time with which to meet this load.

House-Senate conferees trimmed the amount to \$17.5 million after the House had voted no money whatsoever in its action on the second supplemental bill, and the Senate had approved a figure of \$35 million.

New Proposal Considered for Community Facilities Aid

Rep. Blatnik (Minn.) introduced new legislation to authorize loans to municipalities for construction of community facilities. Emphasis would be on the building of hospitals, nursing homes, water and sewer works.

The bill carried a loan fund of \$1 billion to be administered by a Commissioner of Community Facilities, was similar in many respects to bills introduced in the same Congress last year.

Rep. Blatnik's argument, "Our local communities are unprepared for the new demands being placed upon them for additional public services. They are simply unable financially to support them. It is essential that we institute a program on a national scale which will provide these communities with loans at reasonable rates of interest with which to finance these projects."

FHA Bids Field Offices Push Lower Maintenance Costs

The Federal Housing Administration issued a bulletin to its field directors on computing housing expense data on new construction which stirred the industry like few such bulletins had done in the past.

This directed the directors and their underwriting staffs to encourage builders to use materials of more maintenance-free and permanent character to reduce total monthly housing expense. The purpose was to make it possible for a purchaser to carry a larger mortgage without increasing monthly housing expenses. FHA said this approach would make available addi-

continued on page 364

CASE HISTORY #1

HOW A MAJOR SCHOOL SYSTEM CUT MAINTENANCE COSTS 50% WITH THIS BOBRICK SOAP DISPENSER



We cannot use names of school officials because they are part of Municipal Administration. They may not endorse any product. But—this interview was factual, voluntary, true to the word.

John S. Gask, Vice President

- Q How many installations?
- A 8,000.
- Q How did you select?
- A Reviewing all available dispensers on a one year trial period.
- Q What were former replacements?
- A 2,400—3,000 per year.
- Q What were Bobrick replacements?
- A Approximately 100.
- Q What type Dispenser did you choose?
- A Bobrick B-47CP Lather type.
- Q Why?
- A Result of extensive economy tests.
- Q How did Bobrick valve compare?
- A Fewer working parts than any we tested.
- Q How did lather compare?
- A 5 to 1 bulking as contrasted to others.
- Q Did the manufacturer cooperate?
- A The answer to that lies in the fact that after 27 years in operations and maintenance, we have finally licked the Soap Dispenser problem.

FREE—Complete transcript of interview, detailed specification data and sample dispensers available on request.

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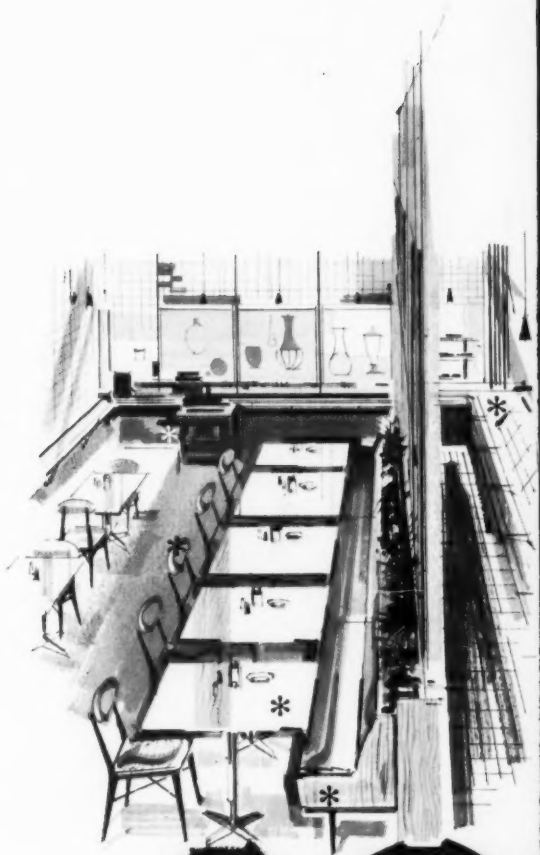
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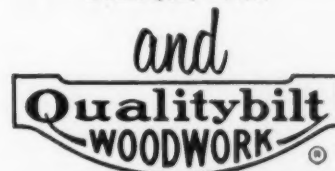
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since 1875*

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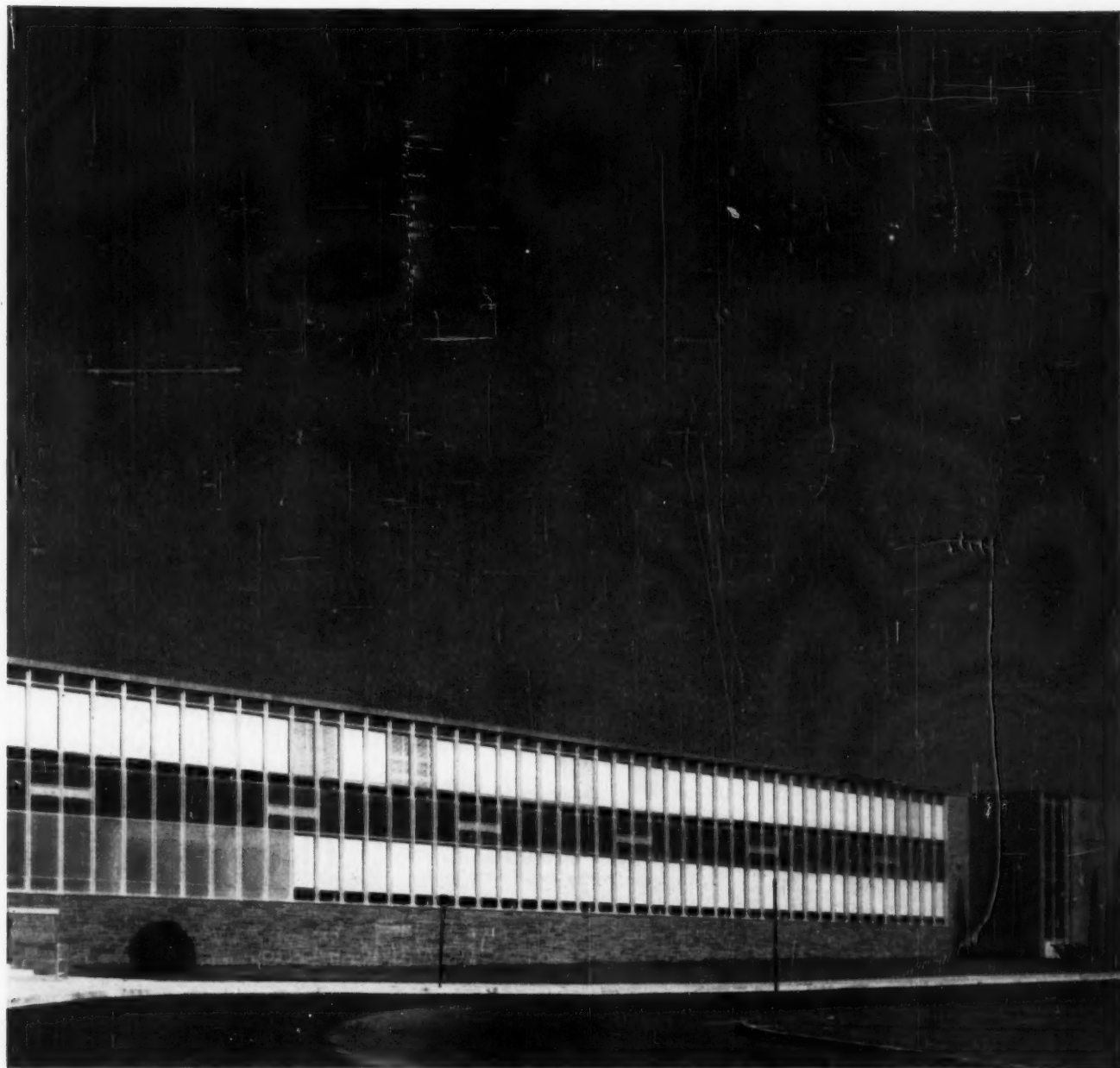
Modern facilities and modern architecture go hand in hand at Cheltenham High School. This beautiful structure houses such advanced features as an Olympic-size swimming pool, sound-proof music rooms and foreign language booths. It was built with 1,434 units of LUPTON Type "H" and 122 units of LUPTON Type "G" aluminum curtain wall, plus 87 LUPTON "Master" projected windows.

You can design creatively with LUPTON . . . vary sizes and locations of glazed and non-glazed areas as well as types of fenestration; material, color, and texture of opaque areas.

Selection of mullion profiles and spandrel panels is another design advantage.

LUPTON construction is also simple and economical. Standardized tooling and fabrication operations, and the lightness of LUPTON's slim, durable aluminum parts make installation fast and easy. You save floor space . . . save maintenance . . . save foundation and framework costs.

Most advantageous of all, though, is LUPTON's dependability. As proven in hundreds of jobs—including one of the largest curtain-wall installations in the world—Two Broadway,



Cheltenham High School, Wyncote, Pa. Architects: Heacock & Platt, Philadelphia, Pa. Contractor: Baton Construction Co., Philadelphia, Pa.

and Curtain Walls

New York City—you can depend on LUPTON to meet your specifications, to deliver as scheduled. You can pinpoint responsibility, because LUPTON can do the whole job—even install!

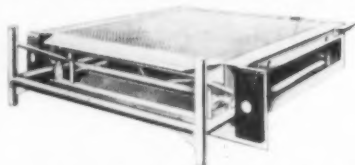
See SWEET's (Sections 3 and 17) for the Michael Flynn Aluminum Curtain Wall and Window catalogs, and write for further specific information. Inquire about LUPTON Comfort-Conditioning*—the new curtain-wall system that cools, heats, and ventilates. A call to the nearest LUPTON representative (see the Yellow Pages under "Windows—Metal") will bring fast action without obligation. (*Trade Mark)

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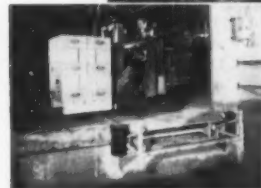
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Washington Topics

tional funds for other improvements.

The idea was not a new one. The FHA underwriting manuals had required insuring offices to keep files of data on expense of owner-occupied properties. The data include hazard insurance, taxes, operating and maintenance costs.

But FHA found that there had developed a tendency on the part of its field personnel to make the estimates without proper attention to these cost differences in maintenance and operation resulting from the use of alternative materials and equipment.

Areas to Watch

The field offices were told that generally, FHA estimates of housing expenses would reflect a different cost for repainting the exterior of a frame house as compared with a brick house. But this is not enough, it said. Recently coming to FHA's attention, the bulletin continued, was the verified fact that siding with baked enamel finish has withstood exposure to the weather over a period of 10 years and indicates that repainting probably would not be necessary for 15 years or longer. (The product has been under actual test for 10 years.)

Other examples of maintenance saving items noted by FHA: deterioration-resistant windows, siding material with integral color, various types of roofing of a durable nature, and specially treated wood not requiring frequent repainting.

FHA then said it felt it was important to reflect the cost savings on use of such materials in combination or singly, not only for proper estimation of expense but also as an incentive to the use of materials of more maintenance-free and permanent character.

It said the same principle applies to the assembly of heating and cooling data and in estimating annual heating and cooling costs. And the agency held it to be of particular importance that its offices recognize the effect which exterior wall material, insulation, and double glazing and other construction features may have on annual heating and cooling costs.

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ARCHITECTS
AGREE**

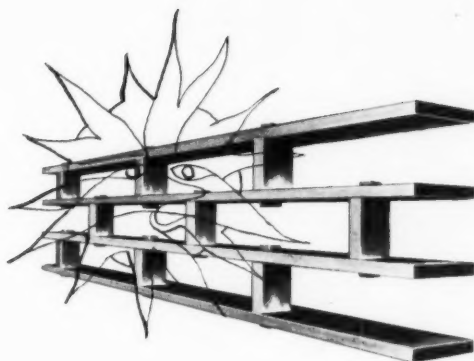
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In addition, Miracle Adhesives Corporation offers architects and contractors full cooperation in providing specifications and details for all types of tile installations — showers, baths, sink tops, roof decks, promenades, facings, ceiling work.

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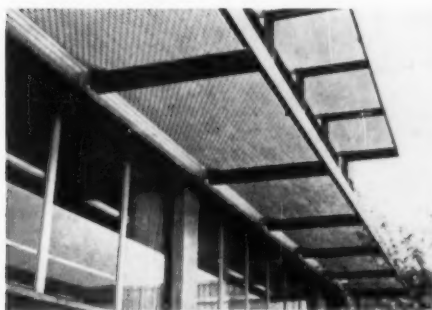


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Anotec applied to the new Bodine Electric Company building in Chicago.

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"OVERHEAD DOOR" opens a new door to climate control

Now doors adapt any building to weather, temperature changes

Now the "OVERHEAD DOOR" offers you new ideas in climate control. Through unique, imaginative applications you can now design structures that literally *adapt* to changing seasons, changing temperatures.

One new idea is the movable wall—banks of "OVERHEAD DOORS" that make the whole wall open, close . . . quickly, silently. To a basically outdoor structure, they let you add indoor protection. To a basically indoor structure, they let you add measured amounts of sun and fresh air.

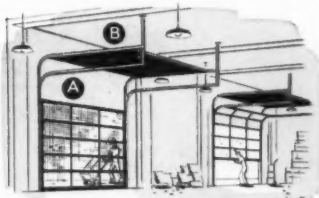
The dramatic swimming pool shown at left is an example. Oregon architect Gordon Trapp utilized banks of glass-paned aluminum "OVERHEAD DOORS" to bring climate control to this indoor-outdoor swimming pool. They open the pool to warm, fair weather,

tightly close it to cold, foul weather—flood it with light all year 'round.

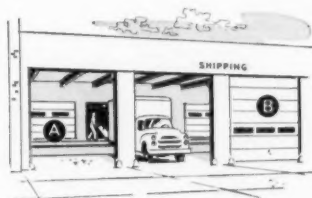
Many other new ideas in climate control have been developed and tested by Overhead Door Corporation engineers—ideas that are a result of this company's 39 years of experience in the garage door field. Some of these ideas may be of value to you.

Get detailed information from your local distributor (see "OVERHEAD DOOR" in the white pages) for an application you may now be planning, or write to Overhead Door Corporation, *General Office*: Hartford City, Indiana—*Manufacturing Distributors*: Cortland, N.Y.; Hillside, N.J.; Lewistown, Pa.; Nashua, N.H.—*Manufacturing Divisions*: Dallas, Tex.; Portland, Ore.—*In Canada*: Oakville, Ontario.

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CONTENTS

TYPES OF SYSTEMS

New construction; old construction; vertically designed systems; horizontally designed systems.

COMPONENTS IN MASTER TV SYSTEMS

Amplifiers; splitters; tapoffs; antennas; transmission line.

THE 'HEART' OF MASTER TV SYSTEMS

"Head-end"; amplifiers; line filters; feed-thru couplers; radiation-proof housings.

'ARTERIES' OF MASTER TV SYSTEMS

"Branching"; splitters; cable; tapoffs; isolation.

ANTENNA INSTALLATION

Orientation, "directivity"; signal strength; towers and masts.

LINE INSTALLATION

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Typical system diagrams; vertical cable run systems; hotel, apartment—to 400 outlets, new construction, existing construction; horizontal cable run systems; School or hospital—100 outlets, new construction, hospital—400 outlets, old construction; trailer park system—148 outlets, new or old construction.

TESTING AND MAINTAINING A SYSTEM

Equipment for servicing a system; substitution method; field repairs; testing and maintaining cable.

CHARTS AND TABLES

Amplifier specifications; tapoff—isolation networks; cable characteristics; attenuator pad construction; half wave open ended stub traps, and more

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GLOSSARY OF MASTER TV TERMS

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Required Reading continued from page 88

New Listing . . .

is a series of columnar tabulations running across two pages for each product listing. (Products cataloged in Sweet's Architectural File carry Sweet's key numbers.) The pages are planned for 18, 3/4-in.-high listings per spread running from top to bottom, and up to as many as 47 columns for information across the two pages. No detail drawings or illustrations are included.

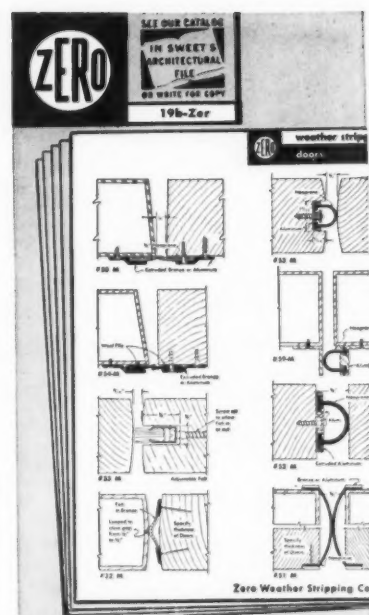
The *Register*, states the A.I.A., does not test or grade products, place them in preferential order, or issue certificates of approval. The A.I.A. also points out that inclusion of a product in no way implies their approval, nor omission, disapproval.

Product data, says A.I.A., were supplied, certified to be correct, proofread and approved by the manufacturers. A.I.A. does not accept responsibility for accuracy of data or for changes in the product which come after issuance of the *Register*. The *Register* is yet another piece of evidence of the tremendous demand for accurate and comprehensive product information.

Norman Italy

APULIA. By C. A. Willemsen and D. Odenthal; translated by Daphne Woodward. Frederick A. Praeger, Inc., 15 W. 47th St., New York 36, 257 pp., illus. \$12.50.

Apulia, in the heel of Italy's boot, lay for about three centuries in the thrall of, first, the Normans and later the Holy Roman Emperors. Its history is knightly and highly romantic. Its architecture is characterized by Norman vigor, seasoned with Byzantine domes and occasional Saracenic decoration, notably in the pierced-screen rose window of the cathedral at Tróia. The authors warn that seekers after the rewards Apulia offers must be ready to put up with the inconveniences of a region off the beaten tourist track, and, sometimes, to look behind the applied Baroque facades. If the excellent plates, made from the authors' photographs, are indicative, the trip is worth it. But if the trip is too difficult, this book will do nicely.



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Current Trends in Construction

Are Soaring Sixties Really Sagging?

THINGS SEEM to be returning to rationality on the economic front. Earlier this year, the question "What happened to the Soaring Sixties?" became quite popular, and one or two disillusioned souls were heard to refer to the "Sagging Sixties." But April brought a somewhat rosier glow to the business scene than the first three months of the year had indicated, and May seems to have presented an even brighter picture domestically. (It's too bad the same thing can't be said of international developments.)

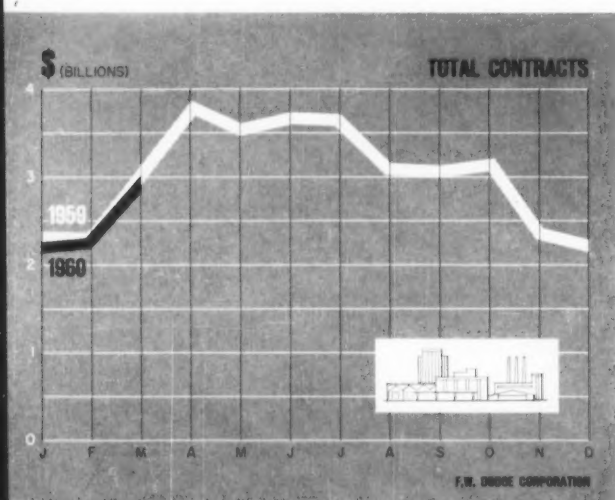
THE FACT is that nearly every important economic indicator is at or close to record levels. Why, then, the gloom? First, we can probably blame the rash of glowing forecasts for the Sixties which appeared near the end of last year. Probably the public was led to expect to feel the upsurge precisely on January 1 of this year. Secondly, as we have mentioned here before, there were the patently erroneous forecasts that the steel strike would, when terminated, produce a boom—an absurd expectation on the face of it. Halting production of a basic industry for many months is a very poor foundation for a boom.

IF ONE LOOKS BACK at the view presented last November by the 273 leading economists participating in the annual Dodge Economists' Survey, one finds that the economy now is just about on the course they predicted. These economists, on the average, expected 1960 to be a very good year for business: a record year in fact; but without the vigorous forward momentum that characterizes a boom year. The widely held view that economists have recently been revising their earlier rosy predictions downward has very little basis in fact.

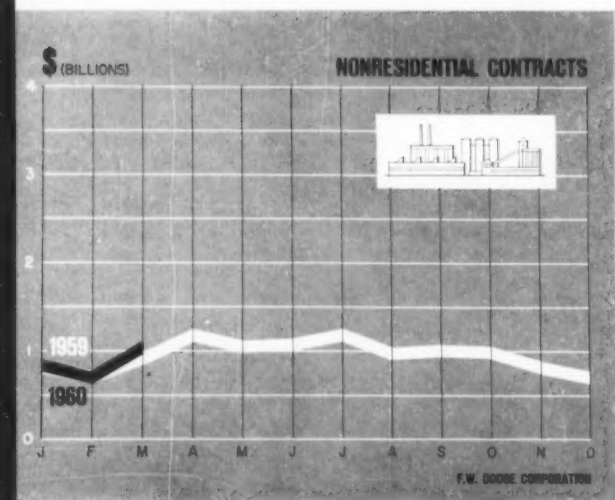
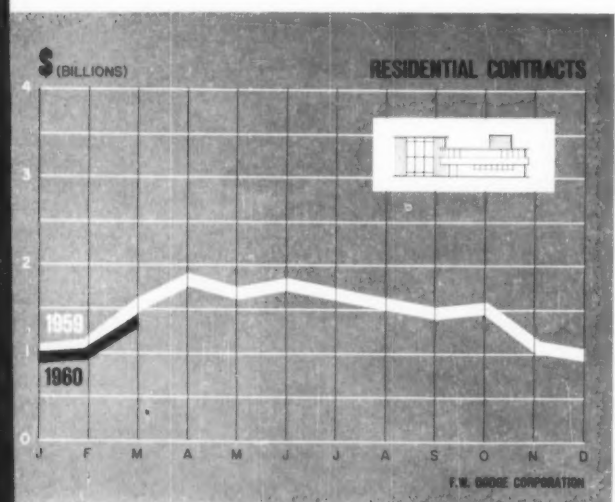
THE RECORD of 1960 to date has been far from depressing. In the first quarter, our Gross National Product passed the half trillion dollar mark for the first time in history. Total industrial production reached an all-time high in January, and has held close to that level since. Consumer spending has been running about 6 per cent above last year, and Easter sales set a new record. The arrival of spring brought a fairly sharp increase in auto sales, leading to increased production schedules. Traveling about the country in April and May, one could not help perceiving a generally better feeling about the outlook on the part of businessmen from coast to coast.

IT SEEMS LIKELY that most economic indicators will tend to edge up gradually in the months ahead. There may be no boom in sight, but there is no room for gloom, either. When the final accounting has been made, 1960 will have been, on the average, the most prosperous year in our history.

GEORGE CLINE SMITH
Vice President and Chief Economist
F. W. Dodge Corporation

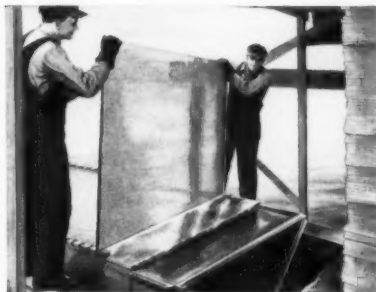


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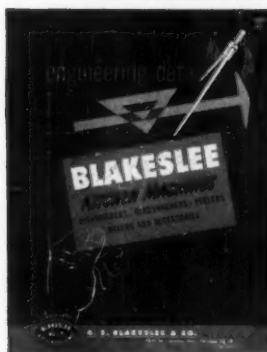
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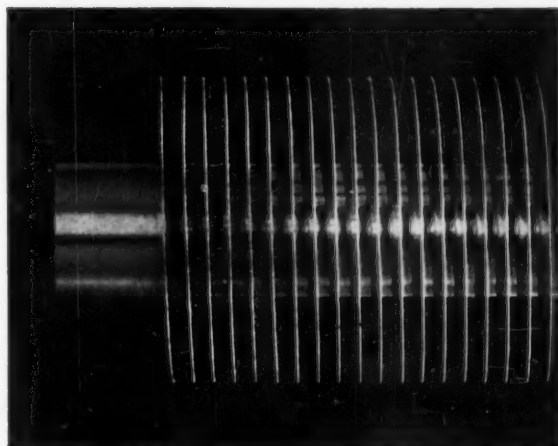
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SEMI-ANNUAL INDEX VOLUME 127 JAN.-JUNE 1960

ABBREVIATIONS: BTS—Building Types Study; AE—Architectural Engineering; TSS—Time-Saver Standards.

A

Abell, Thornton M., and O'Neil Ford & Assocs., archts.; I.B. Adelman House, Beverly Hills, Cal.—Feb. 1960, pp. 181-184

Acoustics. "A Design Tool for Determining Acoustical Privacy Requirements"—March 1960, AE, pp. 222-224. "Toward Greater Ceiling Flexibility"; Union Carbide Building, New York City; Skidmore, Owings & Merrill, archts.—Feb. 1960, AE, pp. 220-225. Technical Roundup: "Airport Terminal Canopy Designed for Minimum Weight, Maximum Sound Absorption"; Pan American World Airways Passenger Terminal, International Airport, New York City; Tippetts-Abbott-McCarthy-Stratton, archts.; Ives, Turano and Gardner, assoc. archts.—March 1960, AE, p. 226

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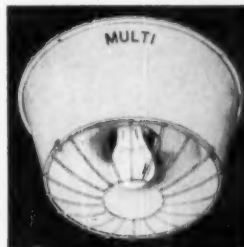
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